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Synthesis, part of a Special Feature on Implementing Participatory Water Management: Recent Advances in Theory, Practice and Evaluation

Designing Participation Processes for Water Management and Beyond

Yorck von Korff [1,2], *Patrick d'Aquino* [3], *Katherine A. Daniell* [2,4], *and Rianne Bijlsma* [5]

ABSTRACT. This article addresses the question of how to design participation processes in water management and other fields. Despite a lot of work on participation, and especially its evaluation, this question has received little attention in the research literature. However, it is important, because previous research has made it clear that participation may yield important benefits for humans and the environment but that these benefits do not occur automatically. One precondition is sound design. The design of participation processes has been addressed in detail in the so-called "craft" literature but more rarely in the scientific literature. This article helps close this gap by systematically analyzing and comparing five design guides to determine whether it is possible to combine them into a more robust guide. The article confirms that possibility and presents a preliminary outline for such a guide. Principles for participatory process orientation are presented, as well as numerous partially iterative steps. The adaptive process is laid out in a way intended to help designers determine the objectives of the participation process and the initial design context, and make preplanning choices that eventually lead to the selection of suitable participation mechanisms. There are also design tools that facilitate this work. We discuss how our findings are largely compatible with previous research on participation, notably the work on criteria for "good" or "effective" participation processes. We also argue that our article advances research on an important remaining question in the scientific literature on participation: What process should be chosen in which context?

Key Words: *Design guides; participation; water management*

INTRODUCTION

Interactions between human and ecological systems are increasingly influenced by public or stakeholder participation, which we will call "participation" in this article. International agreements such as the 1992 Rio Declaration or the 1998 Aarhus Convention, European legislation such as the 2000 Water Framework Directive, and national regulations, e.g., for France (Roche 2003), demand the involvement of the affected parties in the management of natural resources such as river basins, national parks, and coastal areas. A series of research projects financed by the European Commission, including HarmoniCOP, AquaStress, and NeWater among others, has examined how stakeholders may become involved in water management decisions and water management research. Some researchers now consider participation as "both a prerequisite and an element of good governance and the sustainable management of natural resources" (Enserink et al. 2007, similar to Pahl-Wostl et al. 2008).

The issue of public participation is becoming more important not only in natural resources management (Syme and Sadler 1994, Chess and Purcell 1999, Webler and Tuler 1999, Beierle and Konisky 2000, Bryner 2001, Webler and Tuler 2001, Beierle and Cayford 2002) but also in fields such as science and technology (Nelkin and Pollak 1979, Rowe and Frewer 2000), the health sector (Abelson et al. 2003), urban planning (Arnstein 1969, Portland Development Commission 2007), public transport (O'Connor et al. 2000), risk management (Wiedemann et al. 1993, Stern and Fineberg 1996, Renn 2001, Mazri 2007), and industry (Doppler and Lauterburg 2000, Mumford 2003). This "rise of public participation" (Rowe and Frewer 2004) has been accompanied by research that focuses on two pivotal questions (Webler 1999, Webler and Tuler 2001):

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1. What could be the possible benefits of participation, in other words, why should participation be undertaken?

2. How can "good" or "effective" participation be carried out and evaluated?

In addition, concepts and methods of stakeholder analysis in natural resources management (Grimble and Wellard 1997), as well as in public policy analysis (Bryson et al. 2002), have been discussed in detail to enable planners and policy makers to better understand complex social-ecological systems prior to intervention.

However, despite this work, one important aspect of participation has remained characteristically underilluminated in the scientific literature: practical instructions on how to design a participation process, in water management or elsewhere. Exceptions to the above include Edelenbos (1999) and de Bruijn and ten Heuvelhof (2002). Typical challenges for designing such processes include weak participant interest, control-focused local leaders, or highly complex local social relationships (Michener 1998, Alff et al. 1999, Cleaver 1999, Agrawal 2003, Mansuri and Rao 2004).

At the same time, because a gap was perceived (Creighton 2005, d'Aquino 2007, Mazri 2007), a rich practitioner or "craft" literature has proliferated that provides more or less concise advice for designers of participation processes. The advice provided by this literature is often at a "meta-guide" level that seeks to orient process design in varying contexts. Nevertheless, the knowledge produced in this literature has scarcely entered the academic debate, with the exception of Webler (1997 and 1999, see also Webler and Tuler 1999), who has emphasized this point himself. The reason for this is possibly the fact that the practitioner literature, which is often based on the experiential knowledge of its authors, can sometimes be considered suspect because it has not always been peer reviewed or otherwise systematically reflected upon (Webler 1999). An additional concern when using practitioner literature, which we will refer to in the rest of this article as "design guides," to design participation processes is that authors often focus their recommendations on a very specific field, such as urban or land-use planning (see, for example, Vic Roads 1997 or Portland Development Commission 2007), and that they are not always transferable to other fields (Mazri 2007).

The lack of scientific focus on design questions in previous academic research is relevant for two connected reasons. First, it is clear that participation may yield important benefits for humans and the environment (Fiorino 1990, Laird 1993, Webler et al. 1995, Webler and Tuler 2001, Beierle and Cayford 2002, Klinke 2009). These benefits can include:

- improved legitimacy for decision-making administrations because the increased responsiveness of decision makers to affected parties helps to take into account stakeholder values and create trust;

- more pertinent and lower-cost decisions because stakeholders add otherwise unavailable vital information, reframe problems, and contribute new ideas;

- better chances for decision implementation because people are less likely to oppose a decision that they have helped to shape; and

- increased civic competency and social capital because participant interaction may foster learning related to these aspects.

These benefits of participation may in turn encourage the sustainability (Ostrom 1990, Johnson 1997) and greater adaptive capacity of social-ecological systems (Lynam et al. 2002, Pahl-Wostl et al. 2007).

Second, it is also clear that benefits do not occur automatically and that participation processes can miss out on these potential benefits if they are not properly designed and implemented. In fact, poorly designed processes can have negative effects (e.g., Brett 1996, Colgianese 1997, Eversole 2003, Höppner et al. 2003, Delli Carpini et al. 2004, Irvin and Stansbury 2004, Barreteau et al. 2010). These include:

- stakeholder disillusionment with participation and lost trust because of unclear or disputed objectives, raised but eventually unfulfilled expectations, and the dominance of powerful participants;

- relaxed environmental legislation or otherwise lopsided decisions because environmental or other interests were inadequately represented;
- reluctance to participate, increased conflict, or reluctance to adopt a decision because stakeholders and decision makers were not adequately identified and involved; and
- lost time and money as a result of the preceding points.

In light of this need to understand more about design, our aim in this article is to bring practitioner knowledge more directly into the academic debate through a comparative analysis of existing guides. In particular, we plan to investigate the responses to the following questions:

- What kind of advice do design guides provide?
- What type of practical knowledge do they draw upon?
- What does this knowledge add to those aspects of participation that are discussed in the scientific literature?
- Is it possible, by systematically comparing these guides, to combine them into an outline for a more robust design guide? This is the central question in the article.

Before beginning to address these questions, we will clarify some of our main concepts.

Following Enserink et al. (2007), we define participation as "the involvement of individuals and groups [i.e., the public or stakeholders] that are positively or negatively affected by or are interested in a proposed intervention." The latter is in our case a policy decision represented by point *z* in Fig. 1. In European water management, typical policy decisions that involve participation include water management plans.

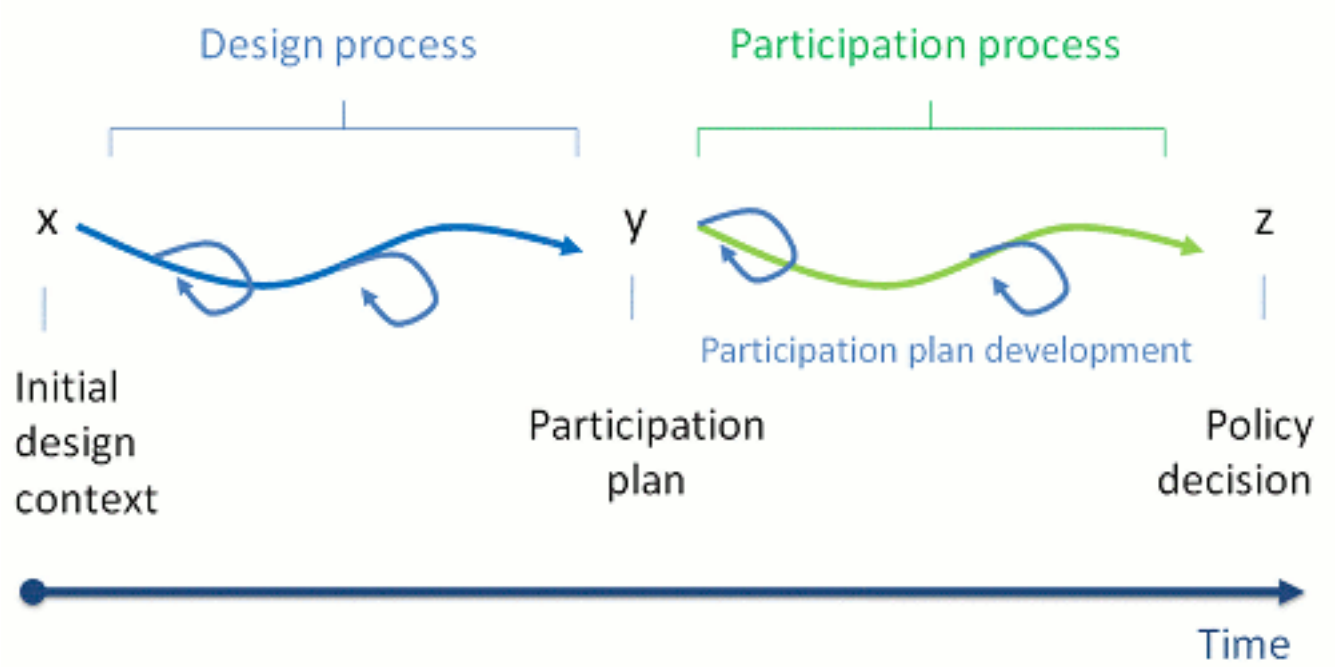
Leading up to the policy decision is the participation process, represented by the space between points *y* and *z*, in which stakeholders interact with each other but also with the agency responsible for the process; we refer to this agency as the "lead agency." These interactions may be, and probably should be, based on a participation plan (point *y*) that foresees how and when this interaction is supposed to happen, who is to be involved, and which questions should be addressed (Creighton 2005). The plan may be, and in our view should be, designed, i.e., constructed rationally with a clear purpose in mind, finished, and possibly tested before implementation starts (Bots 2007).

Following Bots (2007), we note that the word "design" can denote an activity as well as a product. In this article, design as a product is synonymous with the participation plan (point *y*). This plan is based on design as an activity, represented here by the space between points *x* and *y*. What needs to happen in this phase (*x*-*y*), which we call the design process, is the focus of much of this article. We would like to emphasize that design often develops, as in our view it should, through various feedback or iterative cycles. Figure 1 indicates this by the curved lines.

Point *x* represents the situation that designers face when they begin their activities. This initial design context is usually characterized by the following general features:

- There is a water management or other policy decision to be made, e.g., to determine desired groundwater levels in a specific area or to draw up rules for the management of an aquifer.
- There is one or, more typically, several decision makers for this policy decision, e.g., local water authority, municipalities, regional decision-making bodies, the ministry of the environment, etc.
- One of these decision makers is likely to be the lead agency, i.e., the institution that designs and organizes the process.
- The designer may be an employee, e.g., a project manager, of the lead agency or he or she may be an externally hired consultant or an action researcher with the function of a consultant who supports a project manager.
- Even though one person may often be officially in charge of design, the design process is typically a team effort involving

Fig. 1. Defining process design.



various individuals who are later also required for the participation process, e.g., decision makers, facilitators, consultants, public relations people, etc. (Daniell et al. 2010).

- There are other stakeholders who may need to be involved in the design and then in the participation process itself.

- There is a set of contextual factors that need to be taken into consideration when designing the participation plan. These can include existing levels of conflict among stakeholders, their previous experiences with participation, relevant legal or regulatory settings, available budgets, the degree of stakeholder apathy or interest, and many more. These contextual factors are only partly revealed to the designer at this point (point *x*).

- There are a great number of interaction mechanisms, such as public hearings, open houses, workshops, citizen juries, and many others, that the designer may more or less appropriately choose, or even create, and arrange them in the participation plan (*y*).

The designer's task is thus to clarify the initial design context and respond to it. This takes place during the design process (*x*-*y*), in which a rationally justifiable proposal (*y*) for the participation process (*y*-*z*) consisting of one or several stakeholder interaction mechanisms is created in view of the final policy decision (*z*).

Then, during the implementation (*y*-*z*) of the designed plan (*y*), the plan will in all likelihood be adjusted to new requirements that arise during the interaction process (*y*-*z*). This adjustment can be understood (see Bots 2007) as development, which is characterized by a suite of planning and implementation activities, rather than just design.

We will now turn to outlining the main methods we used to respond to the key questions of our paper given in the previous section. This will be followed by a presentation of results related to the first and the third questions about the advice provided by the design guides and about what form the outline for

a more robust design guide could take. The discussion section will address the second question regarding additions to the current scientific debate. It will also present a new outline for a more robust guide, investigating its strengths, weaknesses, and additions to the current debate. The article concludes with a proposal of how to further develop this outline.

METHODS

To answer the three main questions of this article, we opted for an in-depth analysis and comparison of five design guides: Stern and Fineberg (1996), Beierle and Cayford (2002), Creighton (2005), Mazri (2007), and d'Aquino (2008).

Criteria for selecting the design guides

The design guides were selected based on previous reviews of the craft literature (e.g., Webler 1997, von Korff 2007) as well as the practical experience of the authors, who have all used design guides to aid in the conception of participation processes (see Bleiker and Bleiker 1994, U.S. Environmental Protection Agency 1996, Vic Roads 1997, U.S. Department of Energy 1999, OECD 2001, EU 2002, Straus 2002, Miskowiak 2004, HarmoniCop 2005, Steyaert and Lisoir 2005, Portland Development Commission 2007). We selected the guides for this article according to the following criteria:

- All the guides are "meta designs," which is to say that they offer general principles and processes that help designers to develop participation processes for unique initial design contexts. This means that they are the opposite of a blueprint, which outlines how a participation process should look.
- They can be applied to various domains of participation even though the backgrounds of several of their authors are domain-specific.
- They are either widely cited, e.g., Stern and Fineberg (1996) and Beierle and Cayford (2002) in Google Scholar; widely used in higher education, e.g., Creighton (2005); or are French-language guides, e.g., d'Aquino (2008) and Mazri (2007). Because of our own work background in French-speaking countries, we particularly wanted to include the latter to add useful diversity to our study. Because citation frequencies for French-language guides on Google Scholar were rare, we chose these two authors on the basis of our personal knowledge of the quality of their work.

These choices were intended to meet the following criteria:

- The guides must be of help even in the great variety of initial design contexts that designers face at the outset of different design situations.
- The guides must be of interest to a larger community of participation designers.
- The guides must meet certain quality safeguards. This is an important point, because we base the very idea of analyzing and comparing various design guides on the premise of their quality, as we will explain in the next subsection.
- At least some of the French literature on participation, which is not often represented in the international discussion, must be made accessible.

Before moving into our comparative analysis approach, we first provide a brief introduction to the design guides by outlining the types and backgrounds of the guides and their authors.

Background of the design guides

Stern and Fineberg (1996)

This work is the output of a 17-member committee composed of a variety of practitioners and scientists and convened by the U.S. National Research Council with a mandate to improve decision making through the reconceptualization of how risk is characterized. Their envisioned risk-characterization process, which is intended to promote the making of sound and accepted decisions, is based on both technical analysis and deliberation with interested and affected parties. The guide discusses the issues with traditional expert-based risk characterizations as well as the role and limitations of deliberation,

the purpose and implementation of analysis, the integration of deliberation and analysis, and practical steps to implement an integrated approach. It also includes several case studies and an overview of participation mechanisms. The planning approach of the guide has been discussed for watershed management by Webler and Tuler (1999).

Beierle and Cayford (2002)

The authors conducted a rigorous survey of 239 North American examples of participatory natural resource management. Even though their survey focused mainly on possible results, i.e., the "social goals" of participation, they also included a more craft-based chapter on process design, the recommendations from which are based on "informal insights as well as ... formal results." Their advice is for both governmental and nongovernmental project planners and organized in five steps or phases that are concise and drawn in part from their empirical findings.

Creighton (2005)

Creighton's work is the result of 36 years of experience as a participation practitioner, mostly in North America. The founding president of the International Association for Public Participation (IAP2) has, according to his own indications, contributed to or designed more than 300 public participation programs and written more than 30 guides on the topic. His 2005 work is meant to help practitioners in diverse fields of participation. It captures much of his professional experience but also considers the results of research on participation. The advice on design comes in 16 detailed steps that are supported by general principles, numerous examples, contingency discussions, and other tools.

Mazri (2007)

This author writes in the context of French public administration and from the point of view of a consultant or *analyste* who advises a decision maker, the *préfet,* on how to set up a participatory process for a specific policy decision. Mazri has tested his approach in a risk management context but emphasizes its applicability in other areas. The approach is a design process of five phases, including advice on how the designer should proceed in each phase plus various models for illustration. To develop this design process, Mazri extensively reviewed bodies of management, decision-support, risk, and participation literature.

d'Aquino (2008)

Patrick d'Aquino relies on 20 years of implementation and evaluation experience, mostly in a natural resource management context and in developing countries. His approach is, at this point, the least conceptually developed design method of the guides presented here, although it is linked to a theoretical analysis (see d'Aquino 2007). So far, the approach principally consists of a series of multidimensional worksheets based on empirical findings about how to guide designers to shape answers to "how," "when," and "why" questions on participation (for an example, see Fig.2).

An approach for analyzing and comparing the design guides

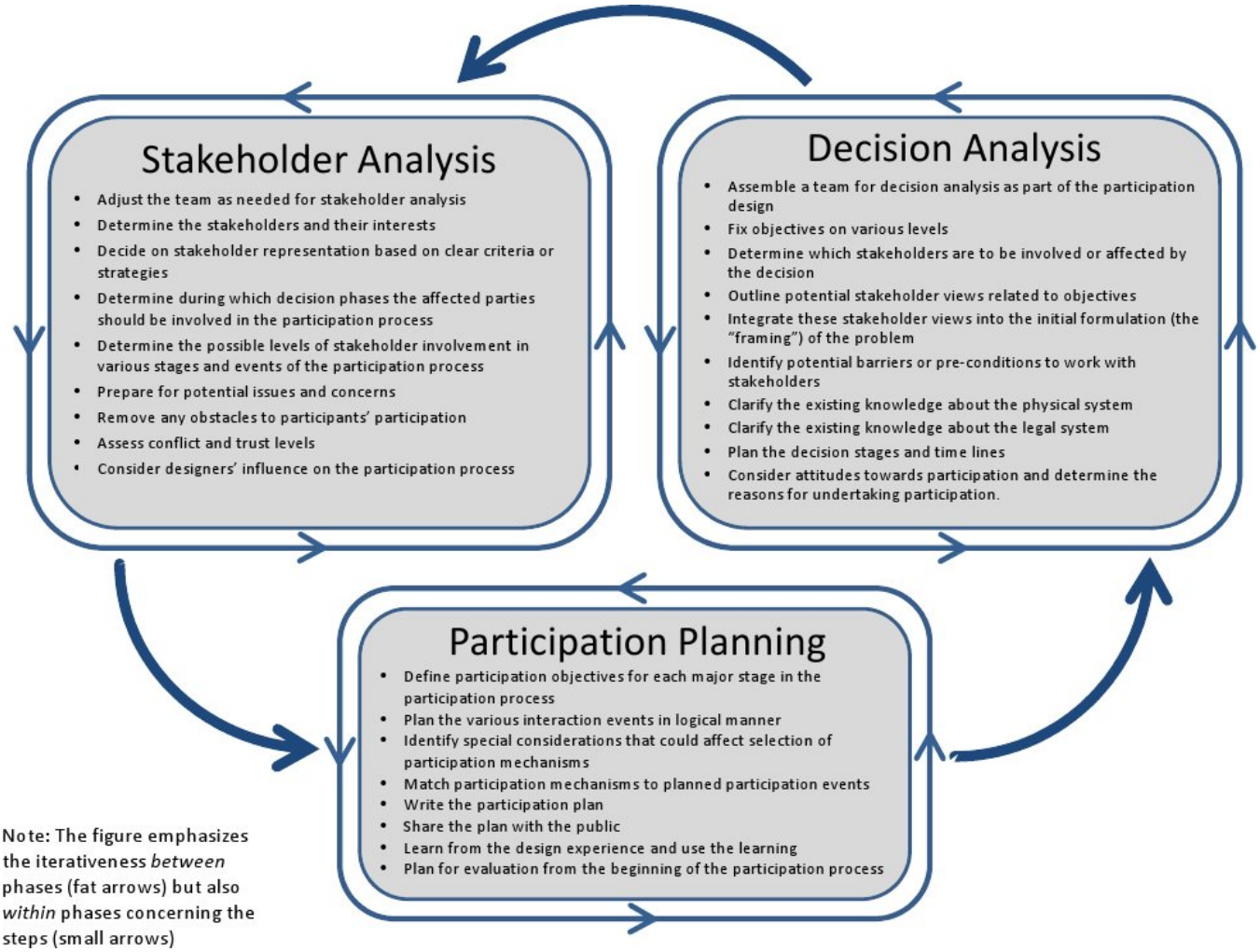
For our research questions we required a method that would allow us to determine:

- the content of the guides and their similarities and differences,
- the extent to which it is possible to combine the various elements of these guides into an outline for a new and more scientifically robust guide, and
- how this outline would add to the existing state of knowledge.

In a first stage to aid our analysis, we defined typical elements of the design guides:

- Phases are the larger units of the design process. One phase consists of a number of steps. The idea of using phases and the selection of the eventual three phases were largely inspired by Creighton's 2005 design guide.

Fig. 2. A model for the new guide.



- Steps are smaller units of the design process, typically based on a topic such as potential participants. This often takes the form of a number of questions that designers should ask to develop their participation plans, such as the following: Who is the decision maker? Who is likely to be affected by the decisions? Who has resources for informing this decision?

- Substeps are distinct and comparable pieces of advice that may include individual questions such as those given above. Because of inconsistency in language, e.g., what one guide refers to as "steps" are called "stages" or "phases" in another, and the overlapping of the guiding questions and advice in the design process steps, we found that deconstructing the guides into individual pieces of advice or substeps provided an easier basis for comparison. This discussion will be further developed below.

- Design tools are used in substeps and help the designer carry out the practical work. They could be any of the following: sets of guiding questions, including for contingency discussions, e.g., what the designer should do if something unexpected or undesired happens; models; comparison tables; and worksheets.

- Principles are general pieces of advice for the designer that may be relevant for the design process as a whole or for individual parts of it. If the phases and steps help orient the designer in terms of what to do first and what to do next, principles provide a compass in a variety of situations. Principles take precedence over other design elements such as steps or tools.

As a second stage of our method, to find a more robust core for a potentially new design guide we deconstructed, compared, and reorganized the various steps and principles of the five guides. We proceeded as follows:

For each author, we created "author tables" (Appendix 1: Tables A1-1–A1-5) based on substeps. In these tables we listed the step as originally named by the author, deconstructed the step when this appeared necessary for comparability, and explained the substep according to the descriptions by the authors of the guide. In the fourth column of the author tables, we noted which substeps in the other guides corresponded to the substep under examination, which brings us to reconstruction.

In three "reconstruction tables" (Appendix 2: Tables A2-1–A2-3), we recombined the results (substeps) of the author tables into steps that could be the basis for a new, more robust guide. The new steps appear in the left-hand column of the reconstruction tables, and the substeps are listed in the next column. Essentially, we combined substeps into new reconstructed steps if the substeps were highly similar in terms of the advice they offered and the questions they asked. In some cases, we also recombined substeps that could be summarized under one common umbrella even if they were slightly different, such as step DA 2 in Table A2-1 (Appendix 2). There are also examples of newly formed steps in which the substep of one author would thematically include some or all of the other substeps, such as step PP (participation planning) 3 in Table A2-3 (Appendix 2). However, we did attempt to avoid partial overlaps in which the recombined substeps contained elements that did not fit into the newly formed reconstructed step. If substeps appeared unable to be combined according to the above-mentioned criteria, e.g., highly similar, common umbrella, or mutually inclusive, we listed them as distinct steps in the reconstruction table. We discuss similar, complementary, and contradictory elements of the substeps in the third column of the reconstruction tables. Finally, we suggest in the right-hand column of the reconstruction tables what the reconstructed steps may mean for designing participation processes in water management.

Sometimes, reconstruction resulted in additional steps, which are marked as such in the reconstruction tables. Although these steps are not required in the new outline, they may be useful in some contexts.

For working on the design principles, we used a similar approach. We first listed the various principles in an overview table for four guides (Appendix 3: Tables A3-1–A3-4); the fifth guide (d'Aquino) does not mention principles. We analyzed each principle for similarities and differences with other principles (right-hand columns). Because principles would often not match up exactly, as happenend with the steps, we reconstructed seven "umbrella principles." Under each of these, we listed a number of similar principles in a principles summary table (Appendix 4: Table A4). We discussed the meaning of each umbrella principle and the comparison of its underlying principles from the four guides in the right-hand column, as well as agreement among these principles as expressed in the guides.

Our assumption behind this recombination method is that any reconstructed elements, whether they are steps or principles, are more robust than when they stem from only a single guide, because they will be based, in many cases, on several similar steps in various guides. The limitations of this assumption, and also the fact that our reconstruction method involves a degree of subjective choice, will be addressed in the discussion section of the paper.

As a last word on design tools, there are many tools presented in the five guides, but because of space restrictions, we chose not to present and compare them in detail in this article. We consider tools as essentially connected to specific steps and substeps and have confined our analysis to categorizing them and providing a few examples.

RESULTS

In this section we will present the results of our comparative analysis of the five guides. By doing so, we hope to understand what advice on design processes the guides contain and to what extent this advice is similar, complementary, or contradictory. In addition, the analysis will allow us to present the outline for a new, potentially more robust and comprehensive design process. The outline as presented here consists of principles, phases and their interior steps, and tools for participation processes.

We will now turn to the various elements of the potential new guide. We will start by presenting the principles of design, followed by the steps and tools.

Design principles

The comparison of the principles (P) contained in four guides (Tables A3-1–A3-4) led us to propose seven overarching design principles:

1. P1: See the participation process as an opportunity for effective decision making and not as a constraining obligation. Decision makers should welcome the idea of participation when it is appropriate, because a successful process will enable them to implement a decision. This principle also implies that any interaction with stakeholders during design or later during implementation should be clearly and transparently linked to specific decisions that are to be made.

2. P2: Consider the input of the stakeholders during design and implementation. This principle follows from P1. It means that the lead agency must commit to taking the contribution of stakeholders into account. It does not mean to do exactly what the stakeholders want but to consider their input for any decisions that are to be made. From this, it follows that the lead agency should transparently explain on what grounds it decided or declined to take into account specific stakeholder inputs.

3. P3: Encourage inclusive and appropriate stakeholder involvement. This principle means that a balance needs to be found between involving all affected and interested parties early on, which could mean erring on the side of too much participation, and remaining efficient in the use of resources for participation, i.e., refraining from involving everybody in everything.

4. P4: Clearly define the roles and responsibilities of the lead agency and those of the participants. From the beginning, the lead agency should be transparent about the influence that participants may have on the decision as well as about the roles the agency itself is to play in the design and implementation processes, e.g., neutral or partisan.

5. P5: Respect political realities. This principle establishes that the main decision makers, not necessarily the lead agency, need to be identified and that they remain responsible for the final decision even if they choose to delegate this responsibility. Decision makers may also be responsible for many decisions during the design process, such as deciding who will be involved in the participation process and on what issues. This principle is in natural tension with the second, so the two should be balanced.

6. P6: Meet the needs of the stakeholders and context. This principle integrates a number of ideas. Among other concepts, it states that stakeholders should be involved in framing or formulating the problem to be addressed in the participation process; that participation mechanisms should be chosen according to the needs of the public, e.g., interest, knowledge, and the realities of the context, e. g., resources, environment, political situation, and objectives; and that participants should be provided with the means, e.g., knowledge, opportunities, to participate in a meaningful way.

7. P7: Always remain open to adjusting the process design. This principle highlights the fact that designers should be prepared to

adjust the planned participation process and the subject matter to be treated in the process as information or additional constraints arise through the design and implementation of the participation process. It considers that critical or reinforcing stakeholder feedback can incite adjustment of the process in areas such as the topic chosen (as already pointed out in P6), the focus of the problem analysis, the experts selected to address a specific question, the stakeholders to be involved, and the participation mechanisms foreseen.

These seven principles, as pointed out in the methods section, resulted from grouping similar principles across guides under a common umbrella. We note that different recombinations and thus summary principles may also be feasible because there is some subjectivity that cannot be avoided in our analyses, as will be further outlined in the discussion.

Among these principles, we found no direct contradictions between the guides; our corresponding analysis can be traced with the help of the author principle tables, A3-1–A3-4 in Appendix 3, and the summary table in Appendix 4, Table A4. Nevertheless, we realized that there were tensions between several of the principles, e.g., between P2 and P5, or even within principles such as P3. This means that designing participation processes consists of finding a balance between pushing for the breadth and depth of participation and respecting political, financial, cultural, and psychological realities.

After looking at the principles that provide more general guidelines for design, we will now turn to the phases and steps that walk the designer through the construction of a participation process in more detail.

Three phases in design

While studying and comparing the guides, it occurred to us that it may be possible to organize the outline for a new guide into three distinct phases. The idea of doing so was inspired by Creighton, although after comparative analysis of the other guides, some adjustments to phase content and labels have been made. The three we see as important from our comparative analyses are:

1. decision analysis,
2. stakeholder analysis, and
3. participation planning.

We will now explain the phases in more detail by introducing the steps we see contained within them. The phases and their steps are also represented in Fig. 2.

Steps for design

Decision analysis

Decision analysis (DA) serves to identify the relevant decision makers, the purpose of the decision, and the rationale for a possible participation process. It also helps to pre-identify timelines and potential stakeholders and to set up a design team. The term comes from Creighton (2005), who considers that decision analysis can be broken down into six distinct steps (see Appendix 1: Table A1-3). For the other authors, similar elements played a role in this first phase as the author tables on decision analysis show. In summary, the comparison resulted in the reconstruction of 10 steps on which there appears to be considerable agreement among the five guides.

1. DA 1: Assemble a team for decision analysis as part of the participation design. Its members should belong to the lead agency, e.g., the water board, but can also include stakeholders or hired consultants if this appears useful for the following steps.
2. DA 2: Fix objectives on various levels. This step consists of asking: From our point of view as lead agency, what are the problems to be solved, e.g., depleting aquifers or water quality issues? What are the decisions to be taken, e.g., developing a water management plan? What are the possible purposes of the participation process, e.g., gaining the support of stakeholders for the measures to be taken? What is the possible purpose of the decision, e.g., to arrive at a sustainable water management situation?

3. DA 3: Determine which stakeholders are to be involved in or affected by the decision. Ask: Who are the actors who are likely to be interested in or affected by the problems under consideration and the decision to be made? This can also be extended to nonhuman stakeholders such as ecological systems and future generations.

4. DA 4: Outline potential stakeholder views related to objectives. Consider what stakeholder views could be with regard to the proposed objectives and the issues that were evoked in DA 2. This is not yet to be a fully fledged stakeholder analysis, only a preliminary sketch.

5. DA 5: Integrate these stakeholder views into the initial formulation or framing of the problem. The stakeholder views that were previously considered are now built into the objectives, political and resource constraints permitting. The basic idea is to take into account assumed and already known stakeholder opinions to avoid stakeholders' later disappointment. It is especially important to consider the views of high-level decision makers and other agencies that may have some shared decision-making authority. For a water authority, this could mean considering the views of officials at the provincial and ministerial levels, land-use planners, and other authorities such as managers of parks and wildlife areas.

6. DA 6: Identify potential barriers or preconditions to working with stakeholders. Analyze what competencies stakeholders need before the participation process starts in terms of their motivation, knowledge, and practical capacities so that they will be able to effectively participate.

7. DA 7: Clarify the existing knowledge about the physical system. Determine what studies, models, and action plans for the system, e.g., an aquifer, already exist and create a preliminary synthesis of state-of-the-art knowledge on the system. In many water management processes, including the development of water basin management plans, careful consideration is required to account for the spatial and temporal diversity of hydrological and social systems over the basin's area. This knowledge may then be linked to questions of stakeholder selection, among others.

8. DA 8: Clarify existing knowledge about the legal system. This may include relevant high-level legal texts, e.g., the European Union Water Framework Directive for water management in the EU states, and national and local regulations. Often it is also necessary to consider legal regulations that are not directly linked to water management or natural resources management but are nonetheless relevant for a given decision to be taken, such as land planning and public participation regulations.

9. DA 9: Plan the decision stages and timelines. Clarify to what extent and when to carry out the stages of a decision-making process, such as problem and values formulation, the development of alternative solutions, the development of evaluation models, and final recommendations.

10. DA 10: Consider attitudes toward participation and determine the reasons for undertaking participation. Avoid high levels of participation when there seems to be a lack of willingness in the lead agency to consider the input of the stakeholders, because it may lead to their collective disappointment in or disillusionment with the decision-making process.

The steps can also be found in Table A2-1 (Appendix 2) and the corresponding substeps in the author tables (Appendix 1: A1-1–A1-5). Here we would like to point out that all five guides have quite similar views on DA 2, DA 3, and DA 5 and four guides on DA 4 and DA 10. The other steps are either mentioned by only one (DA 7) or two guides (DA 1, DA 6, DA 8, and DA 9). However, even these steps appear complementary with the other guides, and we did not uncover any contradictions. Similarities and differences are further discussed in Appendix 2: Table A2-1.

We also found three additional steps (see Appendix 2: Table A2-1) that we consider optional.

Having said that there are no contradictions, we want to stress that, even when substeps are highly

similar, they should not always be equated. For example, Creighton recommends identifying the decision maker and the stakeholders to be involved, which appears slightly different to Stern and Fineberg's recommendation of determining who is at risk; both these substeps are integrated into our DA 3. The reasons for such small differences include the following:

- All the guides are built on different thematic backgrounds. For example, Stern and Fineberg's guide is specifically developed for risk characterization processes, whereas Creighton proposes steps for participation processes that are not domain-specific.
- The exact focus of substeps, despite their similarities, often varies. In our example, Creighton focuses strongly on finding out the views of the decision makers, whereas Stern and Fineberg appear to be more concerned with the views of all the stakeholders.
- The proposed audiences of the guides are different. For example, Mazri writes on how a consultant and a decision maker can collaborate to develop a productive exchange and design, which differs from Beierle and Cayford, who provide direct advice for lead agencies rather than for consultants supporting lead agencies.
- The meaning of a given step is most precisely understood in the context of the rest of the steps in the same guide. This meaning is necessarily reduced by reconstructing the original steps into new steps.

The implication of these differences for a new guide will be further addressed in our discussion section.

Stakeholder analysis

This design phase leads to a more in-depth characterization of the relevant stakeholders and their involvement in the participation process. It is based on a concept that has been extensively described and discussed elsewhere (e.g., Grimble and Wellard 1997, Bryson et al. 2002, Bryson 2003, Mayers 2005) and has been noted for its importance in ensuring informed decision making that is also supported by target groups. As highlighted by Bryson (2003): "Failure to attend to the information and concerns of stakeholders clearly is a kind of flaw in thinking or action that too often and too predictably leads to poor performance, outright failure or even disaster."

All five guides subscribe to the importance of stakeholder analysis in participatory policy making and have adopted elements of it. The core elements they all emphasize are captured in two questions:

1. Which actors should be involved in the decision-making process?
2. What are the actors' interests?

Considered together, the various substeps of the five guides resulted in the following reconstructed steps for the lead agency to take in stakeholder analysis:

1. SA 1: Adjust the team as needed for stakeholder analysis. Check to see whether the initial team from the decision analysis stage may need to be adjusted based on new planning requirements for stakeholder analysis, e.g., bring in social scientists to conduct surveys, people who are familiar with some of the stakeholders or stakeholders themselves.
2. SA 2: Identify the stakeholders and their interests. In water management as in other participation arenas, the stakeholders and their interests should be identified. Various techniques and sets of questions (see "tools") can be used for this. Thus, it becomes possible to develop a more informed view on how far and to whom participation should be extended.
3. SA 3: Decide on stakeholder representation based on clear criteria or strategies. Water managers should reflect on whether participants should be represented by the members of their own group or by surrogates such as attorneys or scientific advisors. Participants may be selected based on socioeconomic criteria, chosen because of their expertise, or self-recruited. These decisions should be made based on the objectives of the process and a few key considerations (see especially Appendix 1:

Table A1-5). Criteria and strategies may need to be clearly documented for procedural transparency.

4. SA 4: Determine during which decision phases the affected parties should be involved in the participation process. Given the specific expertise and interests of the various stakeholders, they should be involved in the participation process when their interests and expertise match the requirements of the process, e.g., certain experts in the diagnostic phase, affected water users throughout the process.

5. SA 5: Determine the possible levels of stakeholder involvement in the various stages and events of the participation process. Consider appropriate levels of influence, e.g., being informed, being consulted, or being involved in problem solving, for different stakeholders throughout the participation process. This reflection should be based on the stakeholders' levels of interest, their expertise and influence, and the objectives of the process.

6. SA 6: Prepare for potential issues and concerns. Try to foresee any issues that may come up in the discussions with the stakeholders so that preparatory work such as studies, policy decisions, and information materials can be done beforehand.

7. SA 7: Remove any obstacles to participation. This could include participant training sessions or extra funding if a lack of knowledge or funding is perceived.

8. SA 8: Assess conflict and trust levels. In water management, as elsewhere, conflict and lack of trust between stakeholders at different levels may already exist before the process starts. This can have implications for participation design; for example, the lead agency may have to allow for longer and more intensive processes for high-conflict situations or select appropriate tools to manage the situation.

9. SA 9: Consider designers' influence on the participation process. When designing and running participation processes, decision makers should ask themselves how much influence they want to exert on the process. They will basically have to find the right mix between generating clarity and structure on the one hand and openness and trust on the other, leaving the process open to be adapted by the participants.

We note that several steps in the stakeholder analysis phase are a reiteration of steps DA 3, DA 4, and DA 5 of decision analysis, except that now the research is done in collaboration with the concerned stakeholders and not merely based on the assumptions of the decision analysis team about stakeholder views.

More often than in the decision analysis phase, several steps are mentioned by only one or a few of the authors. Creighton, for example is the only one who reflects on putting together a specific stakeholder analysis team, although Stern and Fineberg mention this in the participation planning phase below.

Nevertheless, we did not discover substeps in outright contradiction to each other even if the advice on how to implement them differed, e.g., how to determine levels of stakeholder involvement. This "how-to" aspect also involves tools and will be addressed below.

There is one additional step in our stakeholder analysis reconstruction table, which is essentially a repeat of P7, i.e., always remain open to adjusting the process design, so we did not include it in our core steps.

Participation planning

The reconstruction of substeps for participation planning proved more complicated than for the two preceding phases. In participation planning, the guides rely on the information gathered in the previous steps and translate this into participation plans. However, the previous steps described in the different guides do not always, as already mentioned with regard to decision analysis, follow the same logic. For some authors such as Creighton, the participation process to be designed consists of various major stages such as fact finding, problem analysis, the search for solutions, etc., as well as participation events that can occur within these stages, such as specific meetings with stakeholders.

Other authors such as Mazri plan directly for single events. Also, the various thematic backgrounds of the authors, e.g., risk analysis, development, the environment, etc., create some differences in the foci of the substeps. We have dealt with these two problems by including the idea of stages as well as events in our new guide and leaving out substeps that seemed to be too domain-specific, classifying them instead as additional steps.

After adjusting for additional steps, participation planning resulted in the following reconstructed steps:

1. PP 1: Define participation objectives for each major stage in the decision-making process. If designers have already defined the major stages of the process (see DA 9), it may make sense at this point to reconsider the objectives of each of these stages in the light of new information that may have surfaced during stakeholder analysis.

2. PP 2: Plan the various interaction events in a logical manner. As well as thinking about the objectives of stages and stakeholder involvement, designers should also reflect specifically on how they plan to sequence the participation events to align with resource constraints, information, and participant needs.

3. PP 3: Identify special considerations that could affect the selection of participation mechanisms. Systematically check how issues such as the technical complexity of the issue, facilitation team skills, or a hostile public could affect your participation planning.

4. PP 4: Match participation mechanisms to planned participation events. Translate the previously gathered information into a design that lists the key decision points; the participation events that will take place for these; the specific participation mechanisms, e.g., open houses, consensus conferences, etc., to be used in these events; the participants and their level of involvement; and the issues to be addressed.

5. PP 5: Write the participation plan. Convert the previous planning into a coherent written plan explaining the political context, the participation activities that will take place, the sequence of the activities and their interrelationships, and the rationale of the planned decision-making process. The ways in which adaptations to the plan may occur should also be outlined.

6. PP 6: Share the plan with the public. Lead agencies should be open to receive feedback to their plan. They can do this in several different ways. Perhaps the most pragmatic method is the one proposed by Creighton and by Stern and Fineberg: Distribute the plan to stakeholders once it is finished and receive feedback on it at the first stakeholder meeting.

7. PP 7: Learn from the design experience and use the knowledge acquired. Lead agencies and their water managers should use opportunities to learn from the design process. For example, they can receive and use feedback either from outside stakeholders or from within the organization concerning the content of the participation plan and the way it was designed.

8. PP 8: Plan for evaluation from the beginning of the participation process. If managers want to continuously improve the process during its implementation and also learn something about the appropriateness of the process as a whole, they should consider what kind of system they can set up to monitor and finally evaluate the participation process.

Tools for design

The previous subsections have moved from general principles for design through increasingly concrete phases, steps, and substeps. Even more fine-grained advice is contained in the tools that help designers complete the details of their work. We distinguish three different kinds of tools described in the guides: (1) basic tools, (2) tools for matching elements, and (3) finalizing tools.

Basic tools, which include questions and checklists, are used to systematically complete the various steps. All the authors we examined, for most of their steps, furnish specific questions that designers need

to ask. Many of these questions can be found in the explanation columns of the author tables. Creighton in particular as wll as Stern and Fineberg reach a high degree of thoroughness by putting questions and advice into the form of checklists. An example of a question-based checklist that can be used to identify stakeholders is provided in Appendix 5, which also contains an example of an advice-based checklist that can be used to find out more information on stakeholders.

Worksheets, models, and tables are examples of tools for matching elements. During all phases, the guides propose that many of the identified elements be matched up to facilitate the construction of the final plan, e.g., matching selected stakeholders to various levels of participation or stakeholders to discussion issues (see Figs. 3 and 4 as examples).

Ultimately, there are finalizing tools. They serve to integrate all the results from decision and stakeholder analyses with appropriate participation mechanisms and to make the plan. The guides note that there is a challenge for the designer at the end of the design process when many or all of the objectives, context elements, and preplanning steps have been finalized. This challenge consists of relating these numerous elements to adequate participation mechanisms such as citizen juries, public hearings, advisory committees, and modeling sessions. According to all the guides, there is no clear formula for carrying out this activity. Instead, so that they can match them with the many identified requirements, designers are expected to be knowledgeable about the qualities of the numerous participation mechanisms available; Creighton (2005), Mazri (2007), and Stern and Fineberg (1996) describe some of them. However, Creighton and Beierle and Cayford (2002) also offer a few tables in which they link the results of certain design process steps to possible participation mechanisms (see, for example, Table A5-1 in Appendix 5), even though they emphasize that automatisms in choosing tools should be avoided. Once the tools are chosen, they are also to be scheduled in the final participation plan. To allow the capture of multiple elements at once, d'Aquino (2008) offers a multidimensional Excel spreadsheet.

As can be seen from the author tables, we found that almost every step or substep is linked to specific tools, often in the form of questions or basic tools, but also in the form of the other two types of tools. As previously noted, we cannot present all these tools in this article and advise the reader to refer back to the guides for these. Taken together, these tools create a toolbox from which the designers may select appropriate mechanisms as they construct a participation process, while being guided by the seven principles and the various steps and substeps in the three phases outlined in this section.

DISCUSSION

An outline for a scientifically more robust design guide

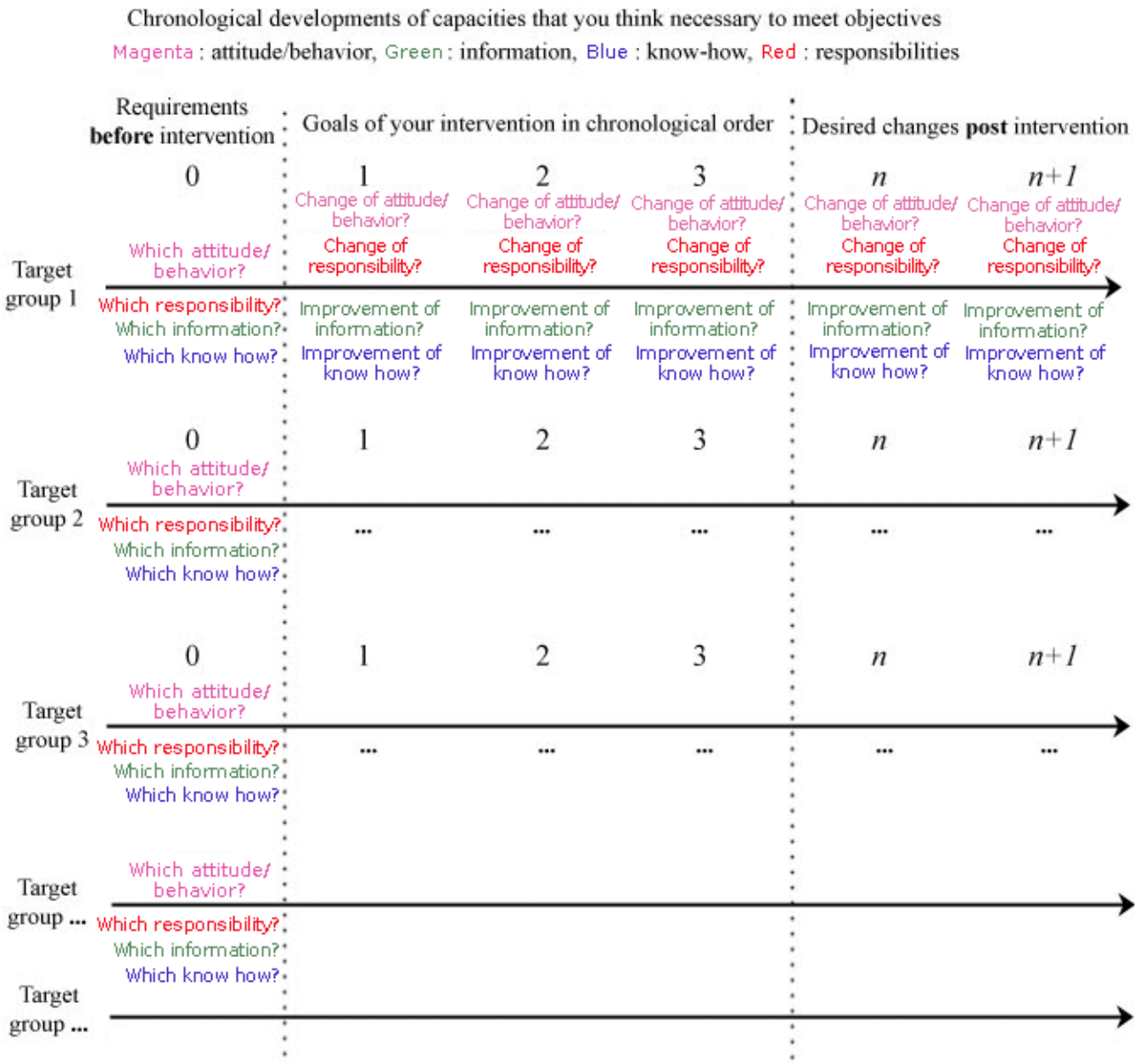
The outline for a scientifically more robust design guide has been presented in the results section and in the form of the various author and summary tables. It consists of the seven principles mentioned above, the steps contained in the tables of the three phases, and the various tools in the original guides. We would like to (re)emphasize certain important features of this new proposed outline for participation design:

- It has wide-ranging applicability. Even though this new guide was constructed from the perspective of natural resources and water management, we speculate that its principles, steps, and tools are applicable in a vast array of public participation situations in multiple domains. This is not in the least surprising, because the guides on which it is based stem from multiple domains.

- It provides broad, as well as detailed, orientation for designers. Because this new guide features principles, phases, steps, substeps, and tools, designers can find general orientation as well as very specific advice on how to proceed in a given situation.

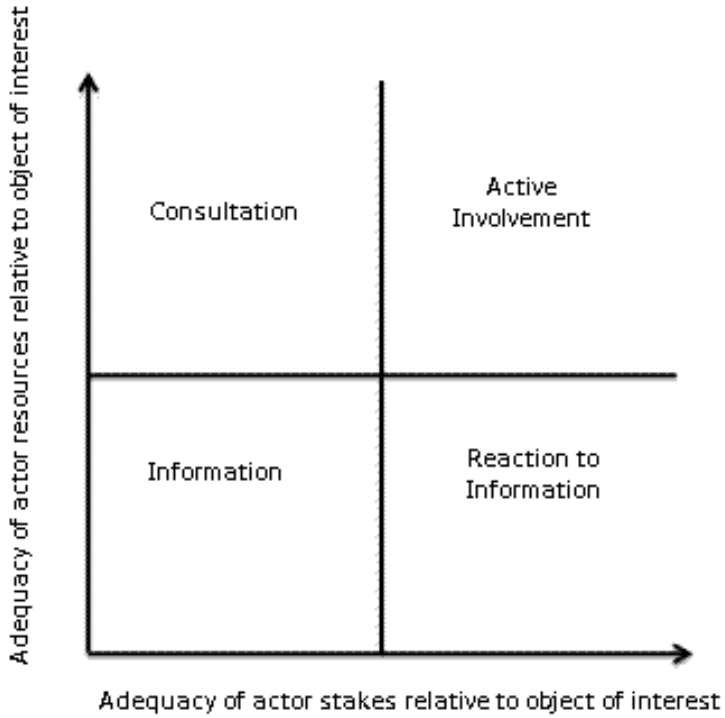
- It increases the involvement of stakeholders. One feature of this guide is that, throughout the design process, the involvement of stakeholders is gradually broadened. Although responsible managers may start the decision analysis phase all by themselves, they will gradually involve more people. At the end, the plan is submitted to as many interested and affected parties as possible. The participation design process is itself a participatory process.

Fig. 3. Example: Matching potential stakeholders to process objectives.



- It is pragmatic. The new guide does not propose participation for all situations but only when it is really required and desired. It encourages designers to use certain types of participation in difficult design contexts such as high technical complexity, but to drop participation when the commitment of key decision makers is lacking.
- It is iterative. The guide features iterativeness as an important principle of design. This means that, despite a certain sequential logic, each step from each phase may be included and repeated later at any point through the design. We have tried to graphically represent this in Fig. 2, which is a model for the new

Fig. 4. Determining levels of involvement by matching stakeholder resources to levels of interest.



guide. It shows the three phases and the names of all the steps for each phase. The circles and arrows indicate the iterative nature of the design process among phases and also within phases.

- It is adaptive. Iterativeness implies that there is a continuous adaptation of the design process as new information appears and that development of the final plan through the participation process is also possible.

Potential weaknesses of this outline

The proposed outline can serve as the basis for the development of a fully fledged guide. It can only be preliminary in nature because of the chosen method and the space limits of this article. Some of the following points are likely to warrant additional work.

Small research base

We used only a small research base. It may be said that to choose only five guides limits the robustness of the new guide. Nevertheless, we strongly feel that for a first comparative effort of this kind the result is sufficiently instructive. More guides may be added in the future.

Subjectivity in the definition of substeps and principles

It was impossible to avoid some subjectivity in the definition of substeps and principles. Even though we followed a clearly defined methodology to deconstruct steps and to reconstruct substeps and

principles, we chose to what extent we deconstructed steps and also how exactly we reconstructed substeps and principles, as carefully justified in our author tables. This means that our outline is a possible one, but certainly not the only one, that could result from such a comparison. Further investigation of other possible recombinations may lead to fruitful results for improving the new guide, and we therefore invite debate and discussion on this subject to develop this important area between research and practice.

Some uncertainty about the absence of contradictions

The absence of contradictions remains problematical. Our results do not show any significant contradictions between any substeps or principles across the different guides, even though we recognize some tensions. However, we cannot be sure of this result, because some guides do not focus on some of the steps contained in some of the other guides. For example, SA 7 in stakeholder analysis, i.e., remove any obstacles to participation, includes an often discussed issue in participation processes: To what extent should participants be supported with additional funds? The answers are not easy, and it is not so clear what, for example, Beierle and Cayford would have to say about this. Therefore, our outline has to live with a caveat on robustness for those reconstructed steps and principles in those cases in which only a few or one author contributes to this step or principle. We would therefore invite further discussion on this issue, especially with but not limited to the authors of the different guides.

Loss of some of the inherent logic of each guide

Our outline had to sacrifice some of the inherent characteristics of the five separate guides. Stern and Fineberg's work, for example, focuses on risk characterization, and the new outline is wider and at the same time less specific. Mazri provides advice for the situation of an analyst and a decision maker interacting to design a participation process, and our advice is intended specifically for the manager of a lead agency. Creighton gears his guide toward a series of participatory events involving distinct stages, whereas Beierle and Cayford design for a one-off event. Our result is an integration of these various logics into a new logic, namely an outline that can be the basis for designing participation processes in various domains, that provides guidance to the lead agency, and that considers participation a long-term process involving multiple events.

Simplifications concerning the lead agency

Our model foresees a lead agency that initiates the design process and later will be responsible for implementation. In reality, there may sometimes be more than one lead agency, for example, when exploring transboundary water management issues. However, we did not choose to dwell on what happens and what needs to happen within the design team, although we touch upon this in DA 1 and SA 1. Daniell et al. (K. A. Daniell, I. White, N. Ferrand, I. S. Ribarova, P. Coad, J. Rougier, M. Hare, N. A. Jones, A. Popova, D. Rollin, P. Perez, and S. Burn, *unpublished manuscript*) focus more directly on some of these aspects.

Some practical points

On a practical side, because this was never intended to be anything more than an outline, it requires further development. In particular, the design tools should be catalogued and linked to steps in which they are useful. Participation mechanisms such as citizen juries, open space processes, and modeling sessions should be explained, and their advantages and disadvantages discussed. When more space is available, it would equally be useful to integrate the reconstructed steps in our results section with the descriptions in the author tables to enable the reader to move from the general to the detailed in a coherent text.

Addition of this article to the literature

The second main question of this article was: What can the knowledge contained in the craft guides add to what is mentioned in the scientific literature? The latter, as we noted in the introduction, contains much valuable information for designers, namely discussions of the potential benefits of participation as well as examples and ideas of how participation and participatory mechanisms can be evaluated (Rosener 1978, Lynn and Busenberg 1995, Webler et al. 1995, Petts and Leach 2000, Bellamy et al. 2001, Carr and Halvorsen 2001, Beierle and Cayford 2002, van Asselt and Rijkens-Klomp 2002, Irvin and Stansbury 2004, Rowe and Frewer 2005, Midgely et al. 2007). Besides operational reflections and case studies on stakeholder analysis, it is especially the research on criteria for good or

effective participation processes (Webler 1995, Rowe and Frewer 2000, Syme and Nancarrow 2002, Marks 2004, Rowe and Frewer 2004) that should be of interest to designers. For example, Rowe and Frewer (2000), who developed nine criteria for effective participation processes that include such elements as the representativeness of the selected participants and the lack of bias in the process, suggest that their criteria can be used not only to evaluate processes but also "a priori to ensure the effectiveness of an exercise *application*" (Rowe et al. 2001). Similarly, Webler (1995) proposed criteria to ensure a good participation process, which are presented as a comprehensive set of detailed rules and subrules specifying the two major concepts of "fairness" and "competence."

Nevertheless, because of their ideal nature, none of these principles should be imposed on every possible participation process. In some contexts, for example, one with a skeptical decision maker, a less than ideal process may be required (see Rowe et al. 2001, Webler and Tuler 2001, Webler and Tuler 2006). It is here that the outline can take designers a step further because the principles and steps that are suggested in it deal with the issue of how to design participation in a pragmatic way (cf., for example, the advice to take into account political realities). Thus, the outline presented here does not set cornerstones for an ideal process but makes various processes possible in different contexts. It is up to the designers to make choices that can be supported in a specific context.

In reality, this means that, in some circumstances, lead agencies may opt for fully fledged ideal processes. In other circumstances, such as in certain cultural or political contexts, less developed participation processes may be warranted, and in yet other contexts the agency may decide to drop participation altogether because there is no corresponding political will or simply no interest on the part of the public.

Our article thus addresses another important question in the scientific literature on participation (Rowe and Frewer 2004): What process should be chosen in which context? There have been attempts to answer this question by systematically listing possible contexts and relating them to mechanism types (Rowe and Frewer 2005). We propose a different path. Instead of trying to systematize contexts and possible responses, we are attempting to provide a scientifically robust means for practitioners to allow them to construct an appropriate process in a large variety of contexts, i. e., a more robust design guide.

Our response to the question of what process in what context is thus different from the response of Rowe and Frewer. Whereas the latter attempt to develop a system of categories that ultimately will require the natural resources manager to match given context categories to given mechanisms, we are encouraging managers to follow an iterative and adaptive learning path throughout design and thus, together with the stakeholders, to develop an appropriate process. The principles, steps, and substeps presented here provide the means for this.

By doing this, we have also linked the craft literature more closely to the scientific debate on participation. Nevertheless, more work on bridging this gap is still required. To do so, it may be valuable to compare larger ranges of design guides.

Furthermore, it would be necessary, for purposes of a fruitful science/practice dialogue, to take a fresh look at both theories (for overviews, see Webler 1999, Delli Carpini et al. 2004, Klinke 2009) and empirical literature related to public involvement and investigate how the various practical recommendations of the new guide match those. This comparative work would fulfill Webler's (1999) demand to "justify prescriptions" and would be a task for another article.

Equally in this direction and as a next step, we hope that it may be possible to use empirical methods to test the validity of the experiential knowledge presented in design guides and our more robust guide outline in a range of different contexts, including for water and natural resources management.

CONCLUSION

In this article, we have looked at a particular gap in the research on participation processes, namely, the question of how participation processes in water management, natural resources management, or elsewhere should be designed. We have shown that a considerable body of practitioner literature exists that deals with this question, but that this literature rarely finds its place in the academic debate. Our article is an attempt to challenge this division

because of the importance of the question for the successful implementation of participation processes and thus, arguably, also for the governance and sustainability of social-ecological systems.

We have based our contribution on a review of five selected design guides that were analyzed and compared for similarities, complementarity, and contradictions. We found a mix of similar and complementary elements that led us to present an outline for a new guide containing concrete design principles, phases, steps, substeps, and a few design tools.

This outline takes the current scientific discussion on participation an important step further because it offers a new systematic approach to addressing the question of how to design a process in a given context.

However, this outline also needs to be fleshed out. Besides linking more design tools to the substeps, and possibly further elaborating the explanations of the substeps, it also requires application in actual water management or other natural resources management or participation fields. By doing so, we will be able to check for any potential inherent contradictions in the outline and adjust for any superfluous or additionally required steps or principles.

The tests of the outline would thus form a part of the "concise research agenda for the field [of participation]" that was requested by Webler (1999), who explicitly called for cooperation between theory and practice, noting that "[p]ulling together the multitude of strands that presently make up the field and weaving them into patterns or fabrics of understandings will demand cooperation and collaboration by both scholars and practitioners." Even though some scholars have responded to Webler's call to develop their own research agenda (Rowe and Frewer 2004), the specific request to combine theory and practice in research seems to have evoked little response. We are proposing this new way to cross-fertilize craft and science.

Responses to this article can be read online at:
http://www.ecologyandsociety.org/vol15/iss3/art1/responses/

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Appendix 1. AUTHOR TABLES

Please click here to download file 'appendix1.pdf'.

Appendix 2. RECONSTRUCTION TABLES

Please click here to download file 'appendix2.pdf'.

Appendix 3. PRINCIPLES OVERVIEW TABLES

Please click here to download file 'appendix3.pdf'.

Appendix 4. SUMMARY OF PRINCIPLES

Please click here to download file 'appendix4.pdf'.

Appendix 5. EXAMPLES OF TOOLS

Please click here to download file 'appendix5.pdf'.

APPENDIX 1. AUTHOR TABLES

When used below in connection with a number, the following letters refer to a guidebook: A = d'Aquino (2008), B&C = Beierle and Cayford (2002), C = Creighton (2005), M = Mazri (2007), and S&F = Stern and Fineberg (1996). The numbers used with them refer to a step or substep in that guidebook. The abbreviations in the last column refer to steps that have been reconstructed in the text of this article in the sections on decision analysis (DA), stakeholder analysis (SA), and public participation (PP).

Table A1-1. Author table: d'Aquino (2008).

	Decision analysis			
His steps	Deconstructed steps (substeps)	Explanation of substeps	Correspondence to other substeps	Reconstructed steps
Worksheet 1	A1: Determine the minimum and the short-, mid-, and long-term objectives of the intervention.	Ask: What are the minimum and the short-, mid-, and long-term objectives of the intervention?	B&C3, C3, M1	DA 2
Worksheet 2	A2: Find out which groups are to be involved.	Determine the stakeholder groups of your intervention.	B&C4, C2, C3, M2, S&F2	DA 3
	A3: Determine preconditions for each target group prior to starting work.	This step asks what each potential stakeholder group needs in terms of its motivation to participate, responsibilities, knowledge, and know-how to be able to take part in a specific participation process.	B&C6	DA 6
	A4: Determine the objectives of the intervention in terms of the changes to be brought about in the target groups.	This is could be seen as a specification of step A1. This step asks what the objectives of the intervention are in terms of changes in the behavior, responsibilities, knowledge, and/ or know-how of the various target groups. According to d'Aquino, the answer should be determined for four different but not exactly specified points in time during the intervention, e.g., beginning, middle, end.	None	Additional step
	A5: Determine what capacities the target groups still need to acquire after the intervention.	This helps to clarify the limits of the intervention. In conjunction with the previous steps, it helps determine the	None	Additional step

		point at which the expectations of the intervention come to an end.		

	Stakeholder analysis			
His steps	Deconstructed steps (substeps)	Explanation of substeps	Correspondence to other substeps	Reconstructed steps
Worksheet 2	A1: List the stakeholders and link them with their interests.	D'Aquino advises that a list of stakeholders be made as a basis for reflecting on their "positive" interests, i.e., what they want to achieve, and their "negative" interests, i.e., what they want to avoid.	B&C1, C2, M2, M5, S&F1	SA 2
	A2: Determine possible reactions of other stakeholders.	Process designers should then ask themselves how other stakeholders will react to the communication of these interests, i.e., positively or negatively.	C5, S&F7	SA 8
Worksheet 3	A3: Consider the stages in the decision-making process, e.g., data collection, data analysis, interest definition, etc. D'Aquino provides 12 stages. Define which actors will be involved in which phases and with which objectives	The designers reflect on which of the various stakeholders will participate in which of 12 fixed stages of the participation process and with which objectives.	S&F 5	SA 4

	Participation planning			
His steps	Deconstructed steps (substeps)	Explanation of substeps	Correspondence to other substeps	Reconstructed steps
Worksheet 4	A1: Determine the various institutional and/or geographical levels that will be relevant for your interventions (workshops or other) and for the eventual decisions to be made.	This substep serves to explicitly reflect on the various geo-institutional scales that may be relevant for making the decision. It could, for example, lead to reflection about involving decision makers on a higher institutional level or larger numbers of end-users on the ground. The intervention (workshop or other) will at this point be only roughly described.	B&C3, C3, S&F1	PP 3
	A2: Define the objective, the facilitator, and the decision	Self-explanatory	A3, A4	Additional step

	maker for each of the interventions (workshops, etc.) on each of the different scales, as well as the stakeholders to be involved.			
	A3: Reflect on change objectives for each stakeholder as a result of the interventions.	The designers determine change objectives, e.g., they would like to see stakeholders begin to consider collective solutions to collective problems or become open to an external intervention with regard to the problem under consideration.	A2, A4	Additional step
	A4: Consider those stakeholders who need to be mobilized for the intervention, who are usually to be found on the ground; those who need to be lobbied at higher administrative levels; and those who need to be empowered, such as marginalized populations.	Here the designers think about the readiness of the participants to become involved. Some may need good arguments, others may need individual meetings, and still others may need incentives or some other form of support to be able to participate.	A2, A3	Additional step
Worksheet 5	A5: Use the worksheet to make the final plan by listing the actors, their level of influence on the decision, the objectives of the issues to be addressed at specific points in time, the methods and support materials to be selected for specific interventions, and the character of the intervention, i.e., presentation, facilitation, or mediation.	This worksheet takes the form of a Gantt chart representing the final participation plan and specifying many elements that have now been decided through the previous steps, including the participation mechanisms to be selected, the points in time when they occur, the participants to be involved, etc.	B&C1, B&C2, C4	PP 4

Table A1-2. Author table: Beierle and Cayford (2002).

	Decision analysis			
Their steps	Deconstructed steps (substeps)	Explanation of substeps	Correspondence to other substeps	Reconstructed steps
Step 1: Determine the need for public participation.	B&C1: Find out if you want to undertake participation for qualifying reasons.	Beierle and Cayford suggest that there are three "rationales" for which decision makers should undertake participation.	B&C2, C9, C10, S&F6	DA 10

		These are instrumental, substantive, or normative reasons (according to Fiorino 1990). Designing participation for other rationales, such as only for legal obligations, may result in failure.		
	B&C2: Make a commitment to be flexible in terms of content and process.	The commitments of the decision makers should be to remain open to the potential dsire of the participants to alter the framng of the problem and accept that the decision makers consider wrong. Without these commitments, the participation process may lack legitimacy and trust.	B&C1, C9, C10, S&F6	DA 10
Step 2: Identify the goals of the process.	B&C3: Identify the goals of the participation process that is to be designed.	Determine, as a lead agency, what specific problem is being solved with the participation process. Check whether wider social goals (for a definition see Beierle and Cayford) are or should be targeted by the process.	A1, C2, M2, S&F1	DA 2
	B&C4: Identify the "public."	Identify the parties that need to be involved. Although B&C do not state this very clearly as a step, the implication is clear when they urge decision makers to consider "the goals ... of the public."	A2, C2, C4, M2, S&F2	DA 3
	B&C5: Identify the goals of the public/the stakeholders.	Ask: What are the goals of the public/stakeholders? This point is also mentioned rather implicitly.	C5, M3, S&F3	DA 4
	B&C6: Identify barriers to goal achievement.,	Barriers could, for example, be strong conflict or the lack of knowledge of specific stakeholders. Barriers already provide ideas about process elements because they need to be addressed if the process is to succeed.	A3	DA 6

Stakeholder analysis

Their steps	Deconstructed steps (substeps)	Explanation of substeps	Correspondence to other substeps	Reconstructed steps
Step 3: Answer	B&C 1: Ask how far the	Here, the choice is between	A1, C2, M2, M5,	SA 2

design questions.	reach of participation should extend.	broad and narrow inclusion. Issues that affect a broad section of the public demand broader participation than issues that affect a relatively narrow set of private interests. So, for processes that aim to reach large sections of the public, corresponding mechanisms should be chosen. However, it should also be kept in mind that mechanisms that are based on intensive small-group interactions often perform better when solving difficult issues than do large-scale activities that include wide parts of the public.	S&F1	
	B&C 2: Ask if participation should be based on socioeconomic characteristics or on interest group representation.	Again, the answer is guided by process objectives. For example, if the representativeness of the policy decision is an issue, the choice will be for socioeconomically representative stakeholders, such as in a citizen jury. If specific expertise and communication skills are important for reaching objectives, the choice will be more likely for interest group representation.	S&F2, S&F3, S&F4	SA 3
	B&C 3: Determine what kind of engagement is appropriate.	The trade-off is between information sharing, i.e., a two-way exchange of information between agencies and citizens such as in a public hearing, and deliberation, which involves more intensive discussion and problem solving. The choice again is a function of the objectives, e.g., informing the public vs. building trust.	B&C4, C3, M3	SA 5
	B&C4: Determine how much influence the public should have, i.e., limited, moderate, or high.	The range is from providing information and comments to formulating recommendations to forging agreements. Again, participation objectives are relevant: More influence, e.g., in negotiations, is likely	B&C3, C3, M3	SA 5

		to increase stakeholder commitment to the process and also more likely to build trust.		
	B&C 5: Determine the role the decision maker should play in running and organizing the participation process.	The choice is between being responsive to the requests of participants and controlling the process. Beierle and Cayford's advice: "Responsiveness is important ... for creating trust..." Decision makers should therefore be ready to relinquish some or even a lot of control of how things are done in the interests of trust.	None	SA 9

	Participation planning			
Their steps	Deconstructed steps (substeps)	Explanation of substeps	Correspondence to other substeps	Reconstructed steps
Step 4: Select and modify a process.	B&C1: Match the answers to the design questions (see B&C3 in *Stakeholder analysis*) to specific participation mechanisms.	Beierle and Cayford's design questions require decision makers to choose among the following trade-offs: narrow vs. broad scope of inclusion, socioeconomic vs. interest group representation, information sharing vs. deliberation, limited vs. moderate or high influence of the public, passive vs. active role of the lead agency in organizing the process. The choice of trade-offs determines the choice of participation mechanism. Possible correlations are provided by Beierle and Cayford in a separate table (see Appendix 5: Table A5-3). The designer should be aware that the mechanism chosen in this manner may be appropriate for only one topic, event, or phase, e.g., the diagnosis of the functioning of the ecological system, in a longer decision-making process.	A5, B&C2, C4	PP 4
	B&C2: Repeat the previous substeps as needed for other stages of the participation process.	The designer should now repeat B&C1 for other phases, topics, and events in the planned participation	A5, B&C1, C4	PP 4

		process as needed.		
	B&C3: Consider also the cost of making your choice.	If resources, especially in terms of funds and time, are quite limited, you should obviously plan for a less intensive process. In this case, it is also important to start by tempering any overdrawn expectations from agencies and participants.	A1, C3, S&F1	PP 3
Step 5: Evaluate the process.	B&C4: Build evaluation mechanisms into the process, especially for checking if the process objectives were reached and if design choices were useful.	Any participation process should be evaluated. To do this, the goals of the process identified earlier can be turned into evaluation criteria. Also, the evaluation can "test the assumptions that drove design choices ... (e.g., whether the right people were selected to participate and whether the public had the right level of influence)."	None	PP 8

A1-3. Author table: Creighton (2005).

	Decision analysis			
His steps	Deconstructed steps (substeps)	Explanation of substeps	Correspondence to other substeps	Reconstructed steps
Step 1: Decide who needs to be involved in decision analysis.	C1: Decide who needs to be involved in decision analysis.	The project manager should find out which other people within her organization or outside may be needed for decision analysis, e.g., higher-up decision makers, decision implementers, support staff such as graphic designers, and possibly members of citizen advisory groups. These people, to the extent possible, should form a team that undertakes the following steps of decision analysis.	None in decision analysis	DA 1
Step 2: Clarify who the decision maker will be.	C2: Clarify who the decision maker will be.	The final decision maker, for example on a water management plan, may not be the project manager who designs and implements the participation plan but one or several higher-up	A2, B&C4, C4, M2, S&F2	DA 3

		government authorities in the ministry, province, etc. Other agencies may also have formal decision-making power. To avoid alienating them from the decision to be taken and to secure their buy-in into the process, it is necessary to identify and involve them early on.		
Step 3: Clarify the decision being made or the problem being solved.	C3 Determine the decision being made or the problem being solved from the point of view of those responsible for the participation process.	With the entire decision analysis team, determine what the question is that needs to be answered with the help of the participation process. The idea here is, until C5, to reach agency-internal agreement on the framing of the problem before going out to the public.	A1, B&C3, M1, S&F1	DA 2
	C4: Consider who the potential stakeholders are.	In his step, Creighton does not explicitly advise identifying the stakeholders at this point. However, he implies it by recommending that expected stakeholder views be included in the project and in the way the problem is framed.	A2, B&C4, C2, M2, S&F2	DA 3
	C5: Preliminarily find out what stakeholder views on the problem/question that needs to be addressed are or could be.	This step should be taken here in to avoid discovering belatedly that the stakeholders are opposed to the focus of the topic.	B&C5, M3, S&F3	DA 4
	C6: Build the stakeholders view into problem formulation.	If possible (when, for example, the political situation allows it), try to formulate the problem at least as broadly as the stakeholders do, which means reframing the problem or the decision as it was formulated in C3.	M4, M5, S&F7, S&F8	DA 5
Step 4: Specify the stages in the decision-making process and the scheduling of those stages.	C7: Specify the stages in the decision-making process.	A decision-making process usually has various stages such as problem definition, determining evaluation criteria, the identification of alternatives, the evaluation of alternatives, and the selection of one alternative. There may be many more. The important point here is to be clear about	C8	DA 9

		what those stages will be because later the public will want to know about this. It also provides clarity for planning.		
	C8: Schedule these stages.	Attach a timeline to the various stages to see at what point in time you will need stakeholder involvement and for which parts of the decision, and when, for example, you need to provide additional expertise. This will help avoid delays in the process. Also, you may be able to see whether the timeframe is sufficient to achieve the goals of the participation program.	C7	DA 9
Step 5: Identify institutional constraints and special circumstances that could influence the public participation process.	C9: Identify institutional constraints.	Determine if there are any barriers to the planned participation program, such as the fact that: the responsible agency has already made a decision, so that participation is a sham; there is strong opposition against the program within the responsible agency; there are schedule or resource constraints; or there are constraints on the release of information that make it difficult to instruct the public on issues they need to know about if they are to participate in a meaningful way. Find out if it is possible to work around these barriers.	B&C1, B&C2, C10	DA 10
Step 6: Decide whether public participation is needed and, if so, what level of participation is required.	C10: Decide whether public participation is needed.	After having gained initial clarity about the decision from the previous steps, it is now time to decide whether this decision requires stakeholder involvement at all. Creighton provides additional questions that can guide reflections, such as: Are there legal requirements for stakeholder involvement? Will there be controversy, in which case participation is recommended? Will the decision require weighing	B&C1, B&C2, C9	DA 10

		one value against another, e.g., environmental protection against farmer incomes, in which case participation is recommended? Also, the issues of C8 should be reconsidered, and at this point it may be decided that a participation program is not advisable.		
	C11: Decide what level of participation is required.	If a participation program is chosen, clarify the level on which stakeholder involvement should take place. Creighton distinguishes these levels: "informing the public," "procedural public participation such as public hearings," "collaborative problem solving," and "developing agreements." The right level depends of the specific objectives of the participation program. For example, if the goal is merely to inform the public about something, the first level maybe sufficient. If the goal is to resolve a hot controversy, the fourth level maybe required. When there is uncertainty about what level of involvement is appropriate, Creighton recommends discussing this with some key stakeholders.	None in decision analysis	Additional step

	Stakeholder analysis			
His steps	Deconstructed steps (substeps)	Explanation of substeps	Correspondence to other substeps	Reconstructed steps
Decide who needs to be on the planning team.	C1: Adjust the planning team as needed.	This is a repeat of step C1 from decision analysis. Essentially, the team built before is likely to continue. However, some senior members who were involved in decision analysis may drop out, and some new members, such as facilitators needed for implementation, may join.	None	SA 1

Identify stakeholders and potential issues or concerns.	C2: Simultaneously identify stakeholders and potential issues and concerns.	Creighton suggests that identifying stakeholders and reflecting on potential issues and concerns are actually two steps, but he recommends carrying them out simultaneously because reflecting about stakeholders will fertilize ideas about potential issues and vice versa. There is much more thorough work at this point than in the preliminary stakeholder analysis in decision analysis. It potentially involves document study and talking to informed persons to find out who the stakeholders could be and what their issues, interests, or concerns are. Creighton provides several sets of questions, i.e., tools, to facilitate this work.	A1, B&C1, M2,M5, S&F1	SA 2
	C3: Determine the level of participation stakeholders will want using the orbits of participation tool.	Creighton proposes an "orbits of influence and interest" model. In the core is the decision-making center, and participants are grouped around this in diminishing circles of influence. The price for being closer to the center is to invest more time and energy; the benefit is more influence. Creighton favors the idea "that people can move from an outer orbit to a more active orbit." The orbits can later be linked to various participation mechanisms.	B&C3, B&C4,M3	SA 5
	C4: Prepare for potential issues and concerns.	The idea is to check how much work, e.g., studies, policy decisions, information material, on the various issues that are likely to be raised needs to be done before the issue can be meaningfully discussed with the stakeholders. Preparing for this helps the lead agency avoid looking uniformed, unresponsive, or unprepared.	M1	SA 6
Assess the probable level of	C5: Analyze the existing levels of conflict around the	The rationale for assessing conflict is that a higher level	A2, S&F7	SA 8

controversy.	issues to be discussed.	of conflict usually requires more intensive participation mechanisms. Creighton recommends that, for each issue that was identified previously, the lead agency check whether there was prior controversy, whether this issue is connected to another major issue or power struggle, and how important this issue is to the major stakeholders.		

	Participation planning			
His steps	Deconstructed steps (substeps)	Explanation of substeps	Correspondence to other substeps	Reconstructed steps
Define public participation objectives.	C1: Define public participation objectives for the major stages in the decision-making process.	Review the different decision-making stages that were defined in the decision analysis phase (Creighton's Step 4). These decision analysis stages do not necessarily correspond to single participation events but may require several events (this is to be determined in C4 below). Check if these stages are still appropriate based on the information that has come in so far. Then (re)clarify the objectives for each of these stages. These objectives will later be important for determining the appropriate level of participation to be used in each of these stages; for example, gaining agreement on a solution usually requires much higher involvement levels than sharing information. Like some of the steps of the other authors, this step is a repeat of a former one and thus highlights Creighton's adherence to the iterativeness principle.	None	PP 1
Analyze the information exchange.	C2: Identify for each step the information needs to be prepared for the public and the information needs that	For each stage in the decision-making process, two questions should be considered: What does the	None	Additional step

	must be obtained from the public.	public need to know to effectively participate at this step, and what do we need to learn from the public to complete this step? This helps to reflect once again on the purpose of each participation event but can also help planners to be better prepared with any knowledge that the public may request.		
Identify special considerations that could affect the selection of techniques	C3: Identify special considerations that could affect the selection of techniques.	There could be "characteristics of the issue, ... of the public, [or] ... of your organization" that could influence the participation mechanisms that are to be used. Creighton lists and describes 15 of these special circumstances or considerations, such as the technical complexity of an issue which requires, according to Creighton, thorough public information, or a hostile public, which often makes it necessary to begin with large public meetings as an opportunity for members of the public to vent their anger.	A1, B&C3, S&F1	PP 3
Select public participation techniques.	C4: Select from a set of mechanisms and schedule them into the different key decision points.	For each stage in the decision-making process, select participation mechanisms. Creighton describes these mechanisms in some detail. Examples are open houses, workshops, advisory committees, and many others.	A5, B&C1, B&C2	PP 4
Prepare a public participation plan.	C5: Write the plan.	The plan should comprise the participation activities that will take place, the sequence of activities and their interrelationships, and their political context to explain why this plan is appropriate in these specific circumstances.	M4, S&F3	PP 5
	C6: Share the plan with the public.	The plan's purpose is to transparently communicate the efforts made so far within the responsible organization,	M5, S&F4	PP 6

		e.g., management, to outside stakeholders and decision makers.		

A1-4. Author table: Mazri (2007).

	Decision analysis			
His steps	Deconstructed steps (substeps)	Explanation of substeps	Correspondence to other substeps	Reconstructed steps
Stage 1: Characterization of the decision maker	M1: The consultant understands the "resources" and interests of the decision maker.	The resources of the decision maker are her legal, economic, and social power but also her knowledge about the issues connected to the decision and her guiding values. Understanding these, as well as her interests regarding the decision, provides a first orientation for the "analyst" or consultant to the participation project. Mazri does not say explicitly that at this point the decision maker should herself express the problems to be addressed, the objectives of the participation process, or the decision to be made. However, this seems to be implied in the question about the interests of the decision maker.	A1, B&C3, C3, S&F1	DA 2
	M2: The consultant understands which stakeholders should be considered.	By asking the decision maker, the consultant determines which actors the decision maker wants to include in the process. This will also shed further light on the problems to be adressed or the decision under consideration.	A2, B&C4, C2, C4, S&F2	DA 3
	M3: The consultant understands the interests and resources of the stakeholders.	Practically at the same time as the previous step, the consultant asks the decision maker to clarify the various interests and resources, e.g., influence, of the stakeholders.	B&C5, C5, S&F3	DA 4
	M4: The decision maker determines the topics to be debated in the participation	The interaction between consultant and decision maker continues, and the	C6, M5, S&F7, S&F8	DA 5

	process.	former helps the latter to determine the topics that need to be addressed in the exchanges with the stakeholders.		
	M5: The decision maker determines the overall objectives of the participation process.	The consultant asks the decision maker to identify her objectives for the participation process and to analyze to what extent these objectives correspond to the decision maker's interests and resources.	C6, M4, S&F7, S&F8	DA 5
	M6: Know the existing relevant legal regulations and, if necessary, advise the decision maker on this.	Often, various texts of law regulate a single decision, and it is necessary to be clear about them from the beginning, because they may regulate certain process steps. In addition, they may prescribe which actors are to be invited into the process and in which capacity.	S&F5	DA 8

	Stakeholder analysis			
His steps	Deconstructed steps (substeps)	Explanation of substeps	Correspondence to other substeps	Reconstructed steps
Stage 2: Study of the topics of debate	M1: For the various issues/ topics that were identified in the previous phase (see M4 in *Decision analysis*), specify the required resources.	Many topics of debate need to be informed by technical as well as contextual knowledge. The decision maker and the consultant should check at this point how much knowledge is already available on the different topics, and how much needs to be acquired before the topics can be addressed with the stakeholders.	C4	SA 6
	M2: For the various issues/topics that were identified in the previous phase, identify the stakeholders and interests of theirs that are linked to the issues.	For each issue, it should be asked who could be affected by decisions related to it and who would like to affect these decisions.	A1, B&C1, C2, M5, S&F1	SA 2
Stage 3: Definition of the level of stakeholder participation	M3: For each issue/topic, determine on what level each stakeholder should participate.	According to his influence model (see Fig.4), Mazri distinguishes four levels of participation: the stakeholders are informed; they are consulted, here in the sense	B&C3, B&C4, C3, M3	SA 5

		of an expert consultation for those with many resources but low stakes; their opinion is taken into consideration, for those with high stakes but few resources such as knowledge or the ability to communicate; or they become involved in deliberations. The decision maker decides on stakeholder involvement according to this model.		
	M4: If necessary, foresee participant training.	Some participants may need training to be able to participate in a meaningful manner. This should be envisioned at this point.	S&F6	SA 7
	M5: Study each stakeholder once again.	Mazri suggests contacting each stakeholder individually to interview them about the topics they want to address, the objectives of the participation process, and the other stakeholders they would like to see involved.	A1, B&C1, C2, M2, S&F1	SA 2
	M6: Adjust your vision about objectives, topics, stakeholders, etc. as new information arises.	Mazri emphasizes the principle of iterativeness. As new information arises through contact with stakeholders, the vision of the consultant and the decision maker concerning the objectives and topics of the participation process should change to reflect this new information. Who should be involved and which interests everybody has are therefore also likely to change. Mazri calls this a "cyclic approach" that requires previous stages to be repeated time and again as new information comes to light.	None as steps (though as principles)	Additional step

	Participation planning			
His steps	Deconstructed steps (substeps)	Explanation of substeps	Correspondence to other substeps	Reconstructed steps
Stage 4: Construction of a model that organizes the	M1: Begin to put the various topics to be discussed in the participation process into a logical order.	Organize the topics to be discussed according to their relationship with each other: either chronologically if, for	M2, M3	PP 2

space of interaction		example, one topic requires the prior study of other topics, synchronically if they are interdependent, or in parallel if they are independent of each other.		
	M2: Match the various actor groups to the various discussion topics.	On the basis of their competencies and their influence as determined previously, the various actors are assigned to different topics. This means that, at this point, the level of involvement for each actor, e.g., consultation or deliberation, will be determined for each topic.	M1, M3	PP 2
	M3: Foresee and plan for the interconnection of the various topics that are going to be addressed.	Because different actors may discuss different topics in various deliberation events but all events are supposed to contribute to a common decision-making project, it is important to ensure an effective exchange between the different activities. For example, this can take place in the form of minutes to be distributed, joint sessions, or a specific committee that is responsible for following and informing about the whole process.	M1, M2	PP 2
Stage 5: The model as a tool for a learning process	M4: The decision maker and the consultant preliminarily finalize the plan.	The various previous stages are integrated into a plan (Mazri's "model"), including the various discussion topics, the stakeholders connected to these, and their level of implication.	C5, S&F3	PP 5
	M5: Submit the plan to the stakeholders for approval or modification.	The stakeholders, as considered previously, express themselves mainly on two points: their own place in the process, i.e., level of involvement, topics of debate in which they are involved, and the coherence and completeness of the various discussion topics that have been identified. The idea behind this is to gain a greater legitimacy for the planned process.	C6, S&F4	PP 6

	M6: The decision maker and the analyst take into account the opinions expressed by the stakeholders and adapt the plan.	Not necessarily all the proposed changes are integrated into the plan, but in any case clear reasoning is developed and communicated by the decision maker and the analyst concerning the various elements of the plan. Consequently, each suggestion of the stakeholders from the previous substep will at least be considered.	S&F5	PP 7

A1-5. Author table: Stern and Fineberg (1996).

	Decision analysis			
Their steps	Deconstructed steps (substeps)	Explanation of substeps	Correspondence to other substeps	Reconstructed steps
Diagnose the kind of risk and the state of knowledge.	S&F1: Understand what is posing the risk.	Understand the main problem that needs to be addressed. In risk characterization, which is Stern and Fineberg's topic, this means to understand what exactly is posing the risk, e.g., engineered processes that may fail or emissions from agriculture; the nature of the harm, e.g., ecological disruption, morbidity, delayed mortality; and where the hazard is experienced, e.g., locally vs. globally, in unique events or repetitively.	A1, B&C3, C3, M1	DA 2
	S&F2: Understand who or what is exposed.	Understand which actors need to be involved. More specifically, ask who is exposed, e.g., human beings, nonhuman organisms, ecological systems, etc., and which groups are exposed, e.g., identifiable sensitive or highly exposed populations.	A2, B&C4, C2, C4, M2	DA 3
	S&F3: Understand which possible harms must be addressed for the risk characterization to be accepted as sufficiently thorough.	Here it should be asked which possible harms will be considered important by the affected populations and must therefore be addressed. This will have implications later, in stakeholder analysis,	B&C4, C5, M3	DA 4

		with regard to whom to involve and which issues need to be prepared and studied in greater detail.		
	S&F4: Understand the state of knowledge uncertainty about the risk.	Analyze what is known, what is inferred, and what is uncertain. Consider what kind of additional analysis the affected and interested parties may demand.	None	DA 7
Describe the legal mandate.	S&F5: Specify any legally fixed elements of the decision-making process.	Determine the level of the lead agency's decision-making authority. In addition, legal fact finding could also pertain to specific process elements, needs for documentation, etc.	M6	DA 8
	S&F6: Consider how much discretion a responsible agency can exercise in involving the affected parties.	In the interests of a "broadly based deliberation," the responsible agency should study "how much statutory discretion it can exercise in order to listen to issues as needed without abdicating responsibility."	B&C1, B&C2, C9, C10	DA 10
Describe the purpose of the risk decision.	S&F7: Describe the purpose of the risk decision.	The type of decision that follows risk characterization should be defined, e.g., the decision could be about regulating an industrial process, setting emission standards, or policy strategies. This will also help identify the affected parties who need to be involved.	C6, M4, M5, S&F8	DA 5
	S&F8: Describe the purpose of the risk characterization.	"Risk characterization" corresponds to "participation process" for the other authors. Consequently, in this substep the decision maker asks about the relationship between risk characterization and the decisions that may be taken as a result. The decision makers should also ask themselves how the risk characterization may affect other goals of the responsible organization.	C6, M4, M5, S&F7	DA 5

	Stakeholder analysis			
Their steps	Deconstructed steps (substeps)	Explanation of substeps	Correspondence to other substeps	Reconstructed steps

4. Describe the affected parties and likely public reactions.	S&F1: Determine "the identity and likely positions and perspectives of the interested and affected parties."	Ask: Who are the affected and interested parties and what are their likely concerns with regard to risk? Risk in this case includes not only mortality and morbidity but also physical, social, economic, ecological, and moral effects. Stern and Fineberg provide more questions to determine the identity of affected parties, such as: Who has expertise that might be helpful? Who has been in a similar risk situation before? Particularly in situations with limited trust, "it is usually wiser to err on the side of too broad rather than too narrow participation."	A1, B&C1, C2, M2, M5	SA 2
	S&F2: Determine whether direct participation is needed.	Direct participation means representation "by the members of their own group." Indirect participation exists when groups are "represented by surrogates such as attorneys or scientific advisors. Direct involvement of affected parties may be essential ... when they have local knowledge that cannot otherwise be brought into the process ..." Direct involvement is also important to increase legitimacy and trust. However, if surrogate representatives such as scientific experts can properly represent the point of view of affected groups and when legitimacy and trust are not issues, indirect representation may be useful. It may, in fact, be the only way to represent certain stakeholders, such as future generations and the environment.	B&C2, S&F3, S&F4	SA 3
	S&F3: Select participants according to four key considerations.	The four considerations are that participation be sufficiently broad, the selection process be fair and perceived as fair, participants	B&C2, S&F2, S&F4	SA 3

	representing interested and affected parties be acceptable to those parties, and participants bring to the process the kinds of knowledge, experience, and perspectives that are needed for the deliberation at hand.		
S&F4: Select participants according to any or several of three possible strategies.	The possible strategies are participant self-selection, sampling based on social and possibly other criteria, and representation according to identified interests. However, all these strategies have shortcomings that can be limited by, for example, combining approaches.	B&C2, S&F2, S&F3	SA 3
S&F5: Determine at which point of the process the affected parties should be involved.	The question to Stern and Fineberg is at what points in the process, e.g., problem formulation, knowledge gathering, option consideration, stakeholders should be involved because "...participation across the spectrum of interested and affected parties is warranted at each significant step of the analytic-deliberative process..."	A3	SA 4
S&F6: Determine any barriers that may hinder effective involvement of stakeholders and address them.	These barriers could be lack of expertise, lack of funding, or lack of trust in the organizing agency. It could also be the case that affected parties feel well represented by the organizing agency and therefore do not want to participate, or they refrain from participation because "they believe they are more likely to achieve their desired outcomes by some other strategy, such as a legal challenge." These barriers should be addressed by adequate planning, e.g., make knowledge or funding available as required.	M4	SA 7
S&F7: Consider the potential for controversy.	Stern and Fineberg recommend informal contacts with the interested and affected parties to find out	A2, C5	SA 8

		about the existing climate of public opinion, i.e., the levels of trust and conflict, and thus be able to start designing a strategy to deal with the existing conflict levels. For example, additional research may be needed to inform controversies.		

	Participation planning			
Their steps	Deconstructed steps (substeps)	Explanation of substeps	Correspondence to other substeps	Reconstructed steps
5. Estimate resource needs and timetable	S&F1: Estimate resource needs and timetable	Process designers should estimate the time and funds needed, in part depending on required expertise and the potential for controversy. They should also judge the potential for receiving additional funding or for budget cuts. In addition, they should take the influence of election and budget cycles for government-related projects into account. Last but not least, they should consider the potential consequences of indecision, especially, but not only, for risk management decisions concerning public health.	A1, B&C3, C3	PP 3
6. Plan for organizational needs	S&F2: Plan for organizational needs	Early on, the unit that is responsible for designing the participation process should consider what kind of support may be required from other units within the agency, e.g., expertise, communication with the public, etc., as well as from outside stakeholders. If relevant, the unit should early in the design process create a "task force or some similar entity that cuts across the usual organizational structure."	None in PP	Additional step
7. Develop a preliminary process design.	S&F3: Develop a ppreliminary process design.	"The diagnosis, i.e. the design process, should result in a clear proposal for the steps of the analytic-deliberative process, their	C5, M4	PP 5

		sequence, expected iterations, participants, rules for closure and other decisions, and tangible products. ... It should consider the legal and resource constraints on the process, where and how affected and interested parties can participate, time commitments, and overall time frame. ..."		
	S&F4: Be ready to share the plan with the public.	"The plan should be open for discussion by the affected and interested parties once the process begins, and it should be changeable as needed."	C6, M5	PP 6
8. Summarize and discuss the diagnosis within the organization.	S&F5: Summarize and discuss the diagnosis within the organization.	The plan should be discussed within the organization that is responsible for risk assessment. This discussion should "help to surface potential problems within the organization, clarify the degree of commitment the organization should make to the activity, and ensure that the organization enters the process with a consistent position on what it is willing to do in terms of participation, deliberation, and other potentially contentious issues."	M6	PP 7

APPENDIX 2. RECONSTRUCTION TABLES

When used below in connection with a number, the following letters refer to a guidebook: A = d'Aquino (2008), B&C = Beierle and Cayford (2002), C = Creighton (2005), M = Mazri (2007), and S&F = Stern and Fineberg (1996). The numbers used with them refer to a step or substep in that guidebook. The other abbreviations refer to steps that have been reconstructed in the text of this article in the sections on decision analysis (DA), stakeholder analysis (SA), and public participation (PP).

Table A2-1. Decision analysis.

Reconstructed summary step	Deconstructed steps	Thoughts on differences and similarities in the summarized deconstructed steps	Application of reconstructed step to water management
DA 1: Assemble a team for decision analysis as part of the participation design.	C1: Decide who needs to be involved in decision analysis.	Only Creighton at this early point explicitly advises the creation of a design team that cuts across organizational sections. Stern and Fineberg also talk about this in their Step 6, noting that such a cross-sectorial task force should be built early in the process. D'Aquino and Beierle and Cayford do not seem opposed even though they do not mention the point. This, of course, does not mean that they would be in favor either; we address this problem in the discussion. Only Mazri seems to have difficulty imagining such a team, because his description is based on a situation in which one analyst or consultant cooperates closely with one decision maker. Nevertheless, Mazri recommends a little later in his Stage 2 that the lead agency "reflect on the resources of the decision maker ... and consider the possibility of increasing them by notably enlarging the composition of the work teams that he would like to involve."	The team members should belong to the lead agency, e.g., the water board, but can also include stakeholders if this appears useful for the following steps. They may be needed for decision analysis as, e.g., modeling experts, technical implementers, and facilitators, and in general as supporters for the participation process to be designed.
DA 2: Fix objectives on various levels.	A1: Determine the minimum, short-, mid-, and long-term objectives of the intervention.	The substeps summarized here are of course not exactly the same, but they are all about determining objectives from the point of view of the lead agency. As d'Aquino's point clarifies, objectives can be short, mid, and long term. This is possibly also reflected in the differing foci of the other authors: Stern and Fineberg as well as Beierle and Cayford advise planners to consider the problem that needs to be solved. However, the latter also point toward larger social goals that the participation process may want to address. Creighton urges planners to consider what decision needs to be made, although he does not really seem to distinguish much between "problem" and	This step consists in asking: From our point of view as lead agency, what are the problems, e.g., depleting aquifers or the need to take action on water quality issues, to be solved? What are the decisions, e.g., developing a water management plan, to be made? What are the possible purposes, e.g., gaining the support of the stakeholders for the measures to be taken, of the participation process? What is the possible purpose, e.g., to achieve a sustainable water management situation, of the decision?
	B&C3: Identify the goals of the participation process that is to be designed.		
	C3: Determine the decision being made or the question being answered.		
	M1: The consultant understands the "resources" and		

	interests of the decision maker. S&F1: Understand what is posing the risk.	"decision." Mazri seems to go beyond determining objectives when he requests the analyst to understand the interests and resources of the decision maker.	
DA 3: Determine which stakeholders are to be involved or affected by the decision.	A2: Identify the groups that need to be involved. B&C4: Identify the "public." C2: Clarify who the decision maker will be. C4: Consider who the potential stakeholders are. M2: The analyst understands which stakeholders should be considered. S&F2: Understand who or what is exposed.	This is a first look by the decision analysis team at potential stakeholders to involve in the decision-making process. Later, during stakeholder analysis, this step will be carried out again in more depth. Some authors, e.g., Creighton, emphasize the importance of involving high-level decision makers; others do not, although they do not advise against it either. Stern and Fineberg appear to go further than the other authors by advising that nonhuman actors should be considered.	Ask: Who are the actors that are likely to be interested in or affected by the problems under consideration and the decision to be made? This can also be extended to nonhuman stakeholders such as ecological systems and future generations.
DA 4: Outline potential stakeholder views related to objectives.	B&C5: Identify the goals of the public/stakeholders. C5: Find out ahead of time how stakeholders view the problem/question that needs to be addressed. M3: The analyst understand the interests and resources of the stakeholders. S&F3: Understand which harms characterization must address for it to be accepted as sufficiently thorough.	In this step, the decision analysis team considers the points of view of potential stakeholders. As in the previous step, some authors, e.g., Beierle and Cayford, refer to this step only briefly, whereas others, such as Creighton, Stern and Fineberg, and Mazri, focus on it. D'Aquino does not mention this step at all, nor does he advise against it. Creighton and Stern and Fineberg emphasize the importance of this step for avoiding trouble with stakeholders later on in the process.	Consider what stakeholder views could be with regard to the proposed objectives and the issues that were evoked in DA 2. This is not yet to be a fully fledged stakeholder analysis, only a preliminary sketch. It should be also noted that, even though DA 3 and DA 4 have been separated here in practice, it is advisable to carry them out simultaneously, because specific issues may point toward specific stakeholders and vice versa. The questions to be asked here would be: What interests of the stakeholders are affected with regard to the perceived problems or the envisaged decisions? What goals are stakeholders likely to pursue when they become involved? From what perspectives would the different stakeholders see the problem/decision as it is framed now and what framing would they see as appropriate?
DA 5: Integrate these stakeholder views into the initial formulation or framing of the problem.	C6: Build the stakeholders' views into problem formulation. M4: The decision maker determines the topics to be debated in the participation process. M5: The decision maker determines the overall objectives of the	As in DA 2, in which objectives were first determined, not all authors talk about the same level of objectives, but they all seem to at least imply that potential stakeholder views should be considered at this point to either broaden the problem formulation (Creighton), adjust the goal of the participation process (Mazri, Stern and Fineberg), preliminarily determine its topics of debate (Mazri), or define the decision to be made and its purpose. Although Stern and Fineberg do not explicitly advise in S&F7 and S&F8 the lead agency to consider potential stakeholder	The stakeholder views that were previously considered are now built into the objectives, political and resource constraints permitting. The basic idea is to take into account assumed and already known stakeholder opinions so that stakeholders are not disappointed later. It is especially important to consider the views of high-level decision makers and other agencies that may have some shared decision-making authority. For a water authority, this could mean considering the views of provincial and ministerial officials, land-use planners, and other authorities such as park and wildlife

	participation process. S&F7: Describe the purpose of the risk decision. S&F8: Describe the purpose of the risk characterization.	opinions, these steps follow another one in which they look at who is exposed to a risk (S&F 2), so their consideration of potential stakeholder views can be assumed at this point. Beierle and Cayford, even though they do not explicitly recommend taking this step, can be assumed to support it through the opinion expressed in B&C2.	managers.
DA 6: Identify potential barriers or preconditions to working with stakeholders.	A3: Determine the preconditions for each target group before work starts. B&C6: Identify barriers to goal achievement.	Only d'Aquino and Beierle and Cayford mention this step at this point in the process design; Creighton's step C9 is different because it is more about checking whether conditions inside the lead agency exist that make the participation process impossible. This step seems complementary to what Creighton, Mazri, and Stern and Fineberg propose because those authors in general advise considering stakeholder needs.	Analyze what competencies stakeholders need before the participation process starts in terms of their motivation, knowledge, and practical capacities so that they will able to effectively participate.
Additional step: Determine the change objectives of the intervention for the different target groups.	A4: Determine the change objectives of the intervention regarding the different target groups.	Only d'Aquino mentions this step. It makes sense when the planned intervention includes the empowerment of the stakeholders or when there is some other change objective with regard to the involved parties.	In European water management, e.g., the drawing up of a management plan, this would be a rather unusual step because water authorities do not usually fix objectives of change for social groups. However, it may apply in specific cases, such as when a water authority wants to encourage certain stakeholder groups to become more involved in long-term water governance.
Additional step: Determine what capacities the target groups will still need to acquire after the intervention.	A5: Determine what capacities the target groups will still need to acquire after the intervention.	Only d'Aquino mentions this step. It would be useful when there is a series of interventions.	This could be a suitable question for a water manager if there is, for example, the intention to move toward a more stakeholder-driven administration of water bodies in the long term.
DA 7: Clarify the existing knowledge about the physical system.	S&F4: Understand the state of knowledge about the risk.	The other authors do not really mention this step explicitly in this early phase of decision analysis. However, it does not seem in contradiction with what they say, e.g., d'Aquino talks about the need to assess preconditions before working with the stakeholders and Creighton in C7 and C8 urges designers to check what additional knowledge they still need to acquire before dealing with the public.	Determine what studies, models, and action plans for the system already exist and create a preliminary synthesis of state-of-the-art knowledge on the system. In many water management processes, including the development of water basin management plans, careful consideration is required to account for the spatial and temporal diversity of hydrological and social systems over the basin's area. This knowledge may then be linked to questions of stakeholder selection, among others.
DA 8: Clarify the existing knowledge about the legal system.	M6: Know the existing relevant legal regulations and, if necessary, advise the decision maker on this.	This step is mentioned by Mazri as well as by Stern and Fineberg. As a step to gather additional knowledge, it does not appear to be in contradiction with what the other authors are saying.	This may include relevant high-level legal texts, e.g., the EU Water Framework Directive for water management in the EU States, as well as national and local regulations. Often, it is also necessary to consider

	S&F5: Specify any legally fixed elements of the decision-making process.		legal regulations that are not directly linked to water or natural resources management but are nonetheless relevant for a decision to be made in an area such as land planning or public participation.
DA 9: Plan the decision-making stages and timelines.	C7: Specify the stages in the decision-making process.	The other authors do not discuss decision planning in this phase. However, they consider this step later in participation planning.	Clarify to what extent and when the stages of a decision-making process such as problem and values formulation, the development of alternative solutions, the development of evaluation models, and final recommendations are to be carried out. It should also be seen if there is enough time to move through these stages.
	C8: Schedule these stages.		
DA 10: Consider attitudes toward participation and determine the reasons for undertaking participation.	B&C1: Find out if there are any qualifying reasons for taking the participation approach.	Of the five guides, only two (Beierle and Cayford, and Creighton) explicitly advise the lead agency to self-critically monitor the reasons why it wants to undertake participation and to refrain from it when there are constraints (Creighton) such as a lack of will to take into consideration the view of the stakeholders. Beierle and Cayford demand as a minimum commitment that the lead agency to be open to changing the problem formulation if this is desired by the participants. However, Stern and Fineberg also recommend adopting an open attitude by interpreting existing decision-making regulations broadly in favor of more participation. Mazri, more generally, advises the lead agency to take into consideration the views of the stakeholders to the extent possible and as required by the situation. D'Aquino does not express himself on these matters but nothing in his guide suggests that he would be opposed to these ideas.	Avoid high levels of participation when there seems to be a lack of willingness in the lead agency to consider the input of the stakeholders, because it may lead to the disappointment or disillusionment of stakeholders and the lead agency in the decision-making process. This could also mean to commit to openness in terms of taking into consideration stakeholder opinions with regard to the issues to be covered. Water managers should also find out about potential opposition toward the participation process in their own agency or other decision-making bodies and interpret existing regulations generously in favor of broad participation if this is warranted by the issues to be addressed.
	B&C2: Make a commitment to be flexible in terms of content and process.		
	C9: Identify institutional constraints.		
	C10: Decide whether public participation is needed.		
	S&F6: Consider how much discretion a responsible agency can exercise in involving the affected parties.		
Additional step: If you decide in favor of participation, start thinking about different levels.	C11: Decide what level of participation is required.	Creighton is the only author to talk about levels of involvement in decision analysis. All other authors do this during the stakeholder analysis phase. This is why it is considered additional for decision analysis.	Water managers, like other participation professionals, may want to consider levels at this point. The right level depends of the specific objectives of the participation program. For example, if the goal is to inform the public about something, the first level, i.e., informing the public, may be sufficient. If the goal is to solve a hot controversy, the fourth level, i.e., negotiation, may be required. In case of uncertainty about what level of involvement is appropriate, Creighton recommends discussing this with some key stakeholders.

Table A2-2. Stakeholder analysis.

Reconstructed summary step	Deconstructed steps	Thoughts on differences and similarities in the summarized deconstructed steps	Application of reconstructed step to water management
SA 1: Adjust the team as needed for stakeholder analysis.	C1: Adjust the planning team as needed.	This step corresponds to Stern and Fineberg's reflection on planning for organizational needs (S&F2 in participation planning). The other authors do not consider these organizational aspects. However, nothing suggests that they advise against this.	Check how the initial team from decision analysis may have to be adjusted according to new planning requirements in stakeholder analysis, e.g., bring in social scientists to conduct surveys, people who are familiar with some of the stakeholders, or stakeholders themselves.
SA 2: Identify the stakeholders and their interests.	A1: List the stakeholders and link them with their interests.	Beierle and Cayford's question is formulated differently from the four other guides, but essentially all questions aim at identifying the stakeholders and their concerns. One difference between authors is how they propose to go about stakeholder analysis. Mazri, for example, proposes highly systematic research and even recommends two rounds of stakeholder analysis during this phase, one without and one with questioning the concerned stakeholders. Creighton provides various sets of questions that could be used. However, the main point for the various authors seems to be to carry out sufficient research on stakeholders and their stakes to be able to say which ones to include and what issues to expect.	In water management as in other participation arenas, the stakeholders and their interests should be identified. Various techniques and sets of questions (see tools) can be used for this. Thus, it becomes possible to develop a more informed view on how far or to whom participation should be extended.
	B&C1: Ask: How far should the reach of participation extend?		
	C2: Simultaneously, identify stakeholders and potential issues and concerns.		
	M2: For the various issues/topics that were identified in the previous phase, identify the stakeholders and interests that are linked to the issues.		
	M5: Study each stakeholder once again.		
	S&F1: Determine "the identity and likely positions and perspectives of the interested and affected parties."		
SA 3: Decide on stakeholder representation based on clear criteria or strategies.	B&C2: Ask: Should participation be based on socioeconomic characteristics or on interest group representation?	This is an "umbrella step." The four substeps mostly differ in their content with the exception of B&C2 and S&F4; the former is contained in the latter. The other three authors do not explicitly address the thorny issue of representation. Creighton and Mazri do give a strategy for the selection of stakeholders based on their interest and influence; see SA 5. Nothing suggests, however, that they would object to Stern and Fineberg's or Beierle and Cayford's considerations.	Water managers should reflect on whether participants should be represented by the members of their own group or by surrogates such as attorneys or scientific advisors. Participants may be selected according to socioeconomic criteria, because of their expertise, or self recruited. Selection should be made according to the objectives of the process and according to a few key considerations (see especially Table A1-5). These criteria and strategies may need to be clearly documented for procedural transparency.
	S&F2: Determine whether direct participation is needed.		
	S&F3: Select participants according to four key considerations.		
	S&F4: Select participants according to three strategies.		
SA 4: Determine during which decision phases the affected parties should be	A3: Consider the stages in the decision-making process, e.g., data collection, data analysis, interest	D'Aquino and Stern and Fineberg ask here at which point of the participation process the stakeholders should be involved and why. The other authors seem	At this point, water managers can go over the plans made so far and consider at which points of the participation process stakeholders should be involved and with what

involved in the participation process.	definition, etc., and define which actor will be involved in which phase and with what objective. S&F5: Determine at which point of the process the affected parties should be involved.	to reflect on this later in the participation planning phase (Creighton, for example, in Step 1 of participation planning).	objectives. Given the specific expertise and interests of the various stakeholders, they should be involved in the participation process when their interests and expertise match with the requirements of the process, e.g., certain experts in the diagnostic phase, affected water users throughout the process.
SA 5: Determine the possible levels of stakeholder involvement in various stages and events of the participation process.	B&C3: Ask: What kind of engagement is appropriate? B&C4: Ask: How much influence should the public have: limited, moderate, or high? C3 Determine the level of participation that stakeholders will want using the orbits of participation tool. M3: For each issue/ topic determine on what level each stakeholder should participate.	Three authors urge designers to consider levels of involvement. B&C3 and B&C4 are almost identical, with the latter being more fine-grained than the former. One difference is that Beierle and Cayford seem to think about involvement for a one-event participation process, whereas Mazri is concerned with involvement for a series of meetings. The latter thus specifies that involvement should be determined for each issue or topic that is going to be discussed. Also, for Creighton, participation is often planned for a series of meetings. He urges designers to remain open to changing levels of participation throughout the process. D'Aquino talks about levels of involvement only at the end of his design process in Worksheet 5 and not at this point. Stern and Fineberg do not elaborate on levels of involvement, possibly because they focus in their guide on deliberation, which already requires a specific level of participation. Basically, the authors seem to agree that it is important to think about levels of involvement and that participation should be handled in a flexible way, meaning that the lead agency should also consider the preferences of the stakeholders, even if specific ways to determine levels of involvement may differ, as suggested by the tools that authors propose for determining levels (see tools).	Consider appropriate levels of influence, e.g., being informed, being consulted, or being involved in problem solving, for different stakeholders through the participation process. This reflection should be based on the stakeholders' levels of interest, their expertise and influence, and the objectives of the process.
SA 6: Prepare for potential issues and concerns.	C4: Prepare for potential issues and concerns. M1: For the various issues/topics that were identified in the previous phase (see M4 in decision analysis), specify the required resources.	Creighton wants to ensure that the lead agency is sufficiently prepared, e.g., in terms of knowledge, before meeting the public on the various identified issues. Mazri has exactly the same concern. The other authors, rather unsurprisingly, do not advise against this.	Foresee any issues that may come up in the discussions with the stakeholders so that any preparatory work such as studies, policy decisions, and information materials can be done beforehand.

SA 7: Remove any obstacles to participation.	M4: If necessary, anticipate participant training. S&F6: Determine any barriers that may hinder the effective involvement of stakeholders.	Mazri and Stern and Fineberg want to ensure that the participants are able to participate in a meaningful manner. The point of Stern and Fineberg is wider, considering more potential problems than Mazri. There is nothing in what the other authors write that would contradict this step.	This could include participant training sessions or extra funding if a lack of knowledge or funds is perceived. It may also mean to address a lack of trust in the lead agency.
SA 8: Assess conflict and trust levels.	A2: Determine possible reactions of other stakeholders. C5: Analyze the existing levels of conflict around the issues to be discussed. S&F7: Consider the potential for controversy.	The three authors agree that the level of conflict that exists around specific issues will likely have consequences for the chosen process. It may point toward more intensive and longer participation processes (Creighton) or require more research (Stern and Fineberg). D'Aquino does not discuss possible consequences of conflict but indicates the importance analyzing it. The remaining authors do not advise against assessing conflict and trust levels.	In water management, as elsewhere, conflict and trust between some stakeholders at various levels may already exist before the process starts. This can have implications for participation design, such as foreseeing longer and more intensive processes for high conflict situations or selecting appropriate tools to manage the situation.
SA 9: Consider designers' influence on the participation process.	B&C5: Ask: What role should the decision maker play in running and organizing the participation process?	Beierle and Cayford suggest that the decision-making authority should be wary of exerting too much control and should also leave the process more open to participant influence as the process matures. The other authors are likely to agree to this because they all subscribe to the principle of stakeholder feedback for process design (see the participation planning phase). Creighton also advises lead agency self-reflection in decision analysis.	When designing and running participation processes, decision makers should ask themselves how much influence they want to exert on the process. They will basically have to find the right mix between generating clarity and structure, and openness and trust by allowing participants to adapt the process.
Additional step: Adjust your vision of objectives, topics, stakeholders, etc. as new information arises.	M6: Adjust your vision of objectives, topics, stakeholders, etc. as new information arises.	Mazri clearly formulates the iterativeness principle as a substep at this point. The other authors also subscribe to this principle without necessarily formulating it as a specific step during the process; for them it is rather an ongoing operation.	This appears to be more of a principle than a step. Iterativeness should be an ongoing operation throughout the design process.

Table A2-3. Participation planning.

Reconstructed summary step	Deconstructed steps	Reflection on differences and similarities in the summarized deconstructed steps	Application of reconstructed step to water management
Additional step: Plan for organizational needs.	S&F2: Plan for organizational needs.	This step we consider only additional at this point in the design process, but it is otherwise highly important. It corresponds to Creighton's C1 substeps in both decision and stakeholder analysis.	In water management as elsewhere in participation, the lead agency should ask itself how it organizes and manages the internal team responsible for designing and accompanying the participation process.

PP 1: Define participation objectives for each major stage in the participation process.	C1: Define public participation objectives for the major stages in the decision process.	This step is specific to Creighton's planning approach because he previously, in decision analysis, asked designers to determine the main decision-making stages of the participation process. It should be remembered that a stage, such as system diagnosis, can involve several participation events. In a way, this step is quite similar to SA 4, even if the focus is a bit different, and thus to the reflections of d'Aquino and Stern and Fineberg. Beierle and Cayford do not focus on this aspect because they gear their design process more to a one-off event participation process. Mazri, on the other hand, seems more to think in terms of an array of discussion topics that have to be brought into some kind of order (see below).	If designers have already defined the major stages of the decision-making process (see DA 9), it may make sense at this point to reconsider the objectives of each of these stages in the light of new information that may have surfaced during stakeholder analysis.
PP 2: Plan the various interaction events in logical manner.	M1: Begin to put the various topics to be discussed in the participation process into a logical order. M2 Match the various actor groups to the various discussion topics M3 Foresee and plan for the interconnection of the various topics that are going to be addressed	Instead of focusing on major stages, Mazri looks at the various participation events that should happen in the process and at how to bring them into a coherent relationship with each other. Also, Stern and Fineberg (S&F3) mention the planning of the sequence of events and their "expected iterations" as important. For Mazri it is a central focus in this last phase.	As well as thinking about the objectives of stages and stakeholder involvement in these, designers should also reflect specifically on how they plan to sequence the participation events to align with resource constraints, information, and participant needs.
<u>Additional Step:</u> Identify the required information exchange.	C2: Identify for each step what information needs to be prepared for the public and what information needs to be obtained from the public.	The other authors do not mention a similar step. There is, however, no reason to believe that they would be opposed to this kind of reflection, which can improve clarity of purpose and the preparedness of the lead agency.	It seems feasible to leave this step for a later stage when participation events are planned in detail.
PP 3: Identify special considerations that could affect the selection of participation mechanisms.	A1: Determine the various institutional and/or geographical levels that will be relevant for your interventions and the eventual decisions to be made. B&C3: Also consider cost when making your choice. C3: Identify special considerations that could affect the selection of techniques. S&F1: Estimate resource needs and timetable.	Creighton's contribution is the most all-encompassing and, in fact, includes the three others plus additional special considerations mentioned by Creighton.	Systematically check how issues such as the technical complexity of the issue, facilitation team skills, or a hostile public could affect your participation planning.
Additional step: Define the people involved in each participation event and any change objectives	A2 Define the objective, the facilitator, and the decision maker for each of the interventions on each of the different scales, as well as the stakeholders to be involved.	Only D'Aquino urges designers at this point to begin thinking about the details of the workshops that they are planning. For Creighton, for example, this comes after the process design has been finished.	It seems feasible to leave this step for a later stage when participation events are planned in detail. Empowerment considerations may be relevant for water

set for them.	A3: Reflect on change objectives for each stakeholder as a result of the interventions.	Unique in d'Aquino's steps is also his reflection on change objectives, lobbying, and empowerment. Even though these three substeps are clearly distinct from each other, we summarize them into an additional step to simplify the overall structure of this summary table.	management in Europe.
	A4: Consider any stakeholders who need to be mobilized for the interventions, usually to be found on the lower geo-institutional scales, those at a higher level who need to be lobbied, and those who need to be empowered.		
PP 4: Match participation mechanisms to planned participation events.	A5: Use the worksheet for making the final plan by listing the actors, their level of influence on the decision, the objectives of the issues to be addressed at specific points in time, the methods and support materials to be selected for specific interventions, and the character of the intervention, e.g., presentation, facilitation, or mediation.	Here the authors describe various ways of matching the information that was gathered in the previous steps and phases to appropriate participation mechanisms such as citizen juries, advisory councils, etc. For Mazri, this seems to be implicitly included in his steps M1–M3. For Stern and Fineberg, it is included in their step S&F3 below. The different authors provide different tools to do this work. What they have in common, however, is the fact that this matching of the information gathered in the design process and the participation mechanism to be chosen occurs and that it usually occurs toward the end of the design process.	Translate the previously gathered information into a design that lists the key decision points, the participation events that will take place for these, the specific participation mechanisms used in these events, the participants and their level of involvement, and the issues to be addressed.
	B&C1: Match the answers to the design questions (see Step 3 of Beierle and Cayford in stakeholder analysis) to specific participation mechanisms.		
	B&C2: Repeat the previous substeps as needed for other stages of the participation process.		
	C4: Select from a set of mechanisms and schedule them into the different key decision points.		
PP 5: Write the participation plan.	C5: Write the plan.	The authors agree on the need to write a plan, although their opinions as to what it should contain differ. D'Aquino and Beierle and Cayford do not mention the necessity for a detailed plan, although step A5 corresponds to an overview of a plan, and it is hardly conceivable that Beierle and Cayford would argue against this basic tool of planning.	Convert the previous planning exercise into a coherent written plan explaining the political context, the participation activities that will take place, the sequence of the activities and their interrelationship, and the rationale for the planned decision-making process. How adaptations to the plan may occur should also be outlined.
	M4: The decision maker and the consultant preliminarily finalize the plan.		
	S&F3: Develop a preliminary process design.		
PP 6: Share the plan with the public.	C6: Share the plan with the public.	Here, one general idea, i.e., sharing the plan with the stakeholders, is common, although there are differences with regard to how this should be done. Creighton simply proposes to communicate the plan to the stakeholders in written form once it is finished. For Mazri this is more of a systematic exercise: He proposes to receive feedback	Lead agencies should be open to receiving feedback on their plan. They can do this in several different ways. Perhaps the most pragmatic method is Creighton's and Stern and Fineberg's approach of distributing the plan to stakeholders once it is finished and then receiving feedback on it at the first
	M5: Submit the plan to the stakeholders for approval or modification.		

		from every stakeholder before the participation process starts so that the plan can be adapted. Stern and Fineberg seem to rather go along with Creighton's idea of sharing the plan and seeing what stakeholders say when the process starts. With regard to the other authors, Beierle and Cayford seem to agree to this feedback loop with their step B&C2 in decision analysis, and d'Aquino gives at least no indication of being opposed to this principle.	stakeholder meeting.
	S&F4: Be ready to share the plan with the public.		
PP 7: Learn from the design experience and use the learning.	M6: The decision maker and the analyst take into account the opinions expressed by the stakeholders and adapt the plan.	Both Mazri and Stern and Fineberg see the finished plan as a learning opportunity even if the focus of the learning is somewhat different. For Stern and Fineberg the finished plan helps test reactions within the lead organization concerning the planned participation process. For Mazri the feedback received from the stakeholders is an opportunity to adapt the plan. It is inconceivable that the other authors would argue against seizing this learning opportunity.	Lead agencies and their water managers should use opportunities to learn from the design process. For example, they can receive and use feedback either from outside stakeholders or from within the organization concerning the content of the participation plan and the way in which it was designed.
	S&F5 Summarize and discuss diagnosis within the organization.		
PP 8: Plan for evaluation from the beginning of the participation process.	B&C4: Build evaluation mechanisms into the process, especially for determining if the process objectives were reached and if design choices were useful.	The other authors do not really mention evaluation as a part of their design steps but rather as something that is required through the participation implementation process. Creighton and Stern and Fineberg clearly recommend evaluation as an element that can improve any public participation effort. There is no reason to believe that any of the other authors would be against evaluation because it can serve as one contributing element to iteratively improving the process.	If managers want to continuously improve the process during its implementation and also learn something about the appropriateness of the process as a whole, they should consider what kind of system they can set up to monitor and finally evaluate the participation process.

APPENDIX 3. PRINCIPLES OVERVIEW TABLES

When used below in connection with a number, the following letters refer to a guidebook: A = d'Aquino (2008), B&C = Beierle and Cayford (2002), C = Creighton (2005), M = Mazri (2007), and S&F = Stern and Fineberg (1996). The numbers used with them refer to a principle in that guidebook.

Table A3-1. Principles overview table, Beierle and Cayford (2002).

Principle	Explanation	Similar principle(s)	Summarized principle
B&C1: Be open to potentially altering the framing of the problem according to the needs of the stakeholders.	Decision makers initiating participating processes "must commit to some degree of flexibility and open-mindedness regarding the nature of the process and its outcomes" because participants "may want to redefine problems, focus on different issues, or otherwise change the nature of questions that agencies ask" (Beierle and Cayford 2002:64).	C5, C6, C8, C10, M2, M3, M4, S&F4, S&F6	P6
B&C2: Recognize the legitimacy of public values.	Decision makers should commit to accepting the values of stakeholders, which may lead to priorities and conclusions that the decision makers consider wrong (Beierle and Cayford 2002:64).	C7	P2

Table A3-2. Principles overview table, Creighton (2005).

Principle	Explanation	Similar principle(s)	Summarized principle
C1: Public participation is viewed as the way decision makers get the mandate they need to act.	Environmental managers should see participation not as something they have to do but as an opportunity, an effective tool, that can help them to move forward even when there is considerable controversy. "No longer is the manager simply making a technically feasible, fiscally responsible decision. This may produce a decision that is so controversial that it cannot be implemented. Instead, the manager is also responsible for creating a process that results in sufficient acceptance so the decision can be implemented successfully" (Creighton 2005:21).	C2	P1
C2: The public participation process is well integrated into the decision-making process.	All interaction with the public should be clearly and explicitly linked to a specific decision that needs to be taken. "Every time you go to the public, you should know why you are interacting with them at this particular point in the decision-making process, what issues need to be discussed with the public, and	C1	P1

	what decisions the public's comments could have an impact on. ... [Otherwise the] public will get the sense that its participation affects nothing" (Creighton 2005:21).		
C3: The interested public is involved in every step of decision making.	Most important decisions involve a number of smaller decisions that are made along the way, for example, "about how the problem is defined, what alternatives are considered, what evaluation criteria are applied ... Interested parties want and need to participate in these incremental decisions for the final decision to be legitimate .... This doesn't mean that all stakeholders will participate at each stage in the process ... But the opportunity to participate is essential to success" (Creighton 2005:22).	C4, M5, S&F1, S&F2	P3
C4: Programs are targeted to ensure the involvement of all stakeholders who perceive themselves to be affected.	Because the concerned and affected public changes with each issue, agencies should make special efforts to include "the full range of opinion" concerning a given issue as well as "interests for whom there is no obvious mechanism for representation." Otherwise, "if people feel left out, that's a prescription for significant controversy" (Creighton 2005:23).	C3, M5, S&F1, S&F2	P3
C5: Multiple techniques are used, aimed at different audiences.	Public participation programs often consist and should consist of "a succession of activities, each appropriate for the task being completed and the audience of the interest parties." These activities can be policy committee meetings, technical committees, advisory committees, public meetings and workshops, newsletters and other activities.	B&C1, C6, C8, C10, M2, M3, M4, S&F4, S&F6	P6
C6: Only undertake participation when there is enough interest of the public/stakeholders in the policy decision to be made.	"Sometimes the level of public interest is just too low [for generating involvement in a participation process]..." (Creighton 2005:42).	B&C1, C5, C8, C10, M2, M3, M4, S&F4, S&F6	P6
C7: Only undertake participation when the lead agency is committed to seriously considering the contribution of stakeholders.	"Sometimes the agency is already locked in to a particular outcome, and providing opportunities for participation is a charade or fraud" (Creighton 2005:42).	B&C2	P2
C8: Only undertake participation when there are enough resources to finance a participation process.	"There are times when the agency simply doesn't have the resources, and it is better to accept the potential for controversy and reaction from a decision made without consultation than begin a public participation program that creates expectations that cannot	B&C1, C5, C6, C10, M2, M3, M4, S&F4, S&F6	P6

	be fulfilled" (Creighton 2005:43).		
C9: Agencies retain decision-making authority throughout the participation process.	"In public participation, the agency retains the ultimate decision-making authority, although it may choose to share that decision making in return for a higher level of public acceptance" (Creighton 2005:12).	M8	P5
C10: The participation process should never be designed more ambitiously, in terms of the numbers of stakeholders invited and their influence on policy making, than the context, again the decision makers but also other constraints such as schedule and budget, allows.	The intensity and frequency of stakeholder involvement should not exceed what the decision makers are willing to accept. Also, consider time and financial resources.	B&C1, C5, C6, C8, M2, M3, M4, S&F4, S&F6	P6

Table A3-3. Principles overview table, Mazri (2007).

Principle	Explanation	Similar principle(s)	Summarized principle
M1: The decision maker supports the idea of a participatory process.	The decision maker agrees to widen the space of interaction in terms of affected parties to be involved (Mazri 2007:129).		
M2: The design approach itself should be participatory.	The affected parties should have the opportunity to at least validate the design once it is finished.	B&C1, C5, C6, C8, C10, M3, M4, S&F4, S&F6	P6
M3: The main problem to be addressed should be formulated by relying on the input of the concerned parties.	Problem formulation should take into account the perspectives of the various stakeholders.	B&C1, C5, C6, C8, C10, M2, M4, S&F4, S&F6	P6
M4: The approach should consider the requirements of fairness, competence, and efficiency.	In his definition of "fairness" and "competence," Mazri follows Webler (1995:38), who defines fairness as "not only are people provided equal opportunities to determine the agenda, the rules for discourse, and to speak and raise questions, but also equal access to knowledge and interpretations." Competence "... relates to psychological heuristics, listening and communication skills, self reflection, and consensus building" (Webler 1995:39). Efficiency adopts a rule of Rowe and Frewer (2000): The	B&C1, C5, C6, C8, C10, M2, M3, S&F4, S&F6	P6

	designed process should reach its goals with a minimum of cost and time expended.		
M5: The participation of the various actors in one participation process can take different forms.	To fulfill the requirements of fairness, competence, and efficiency, not all stakeholders participate in the same way. This depends on the topics debated and the correlated interests and knowledge of the actors, as well as other factors.	C3, C4, S&F1, S&F2	P3
M6: The design of the participation process is subject to collective learning.	The design process will be accompanied by critical reflections, potentially including all participants, who will be invited to comment on the designed process.	M7, S&F5, S&F8	P7
M7: Process design is iterative, i.e., it evolves as a result of a dialogue with the stakeholders.	During the design of the participation process, the decision maker is in constant contact with the stakeholders to learn about their views on the problem to be addressed and the form that the participation process should take. The decision maker takes these views into account as the participation process is being designed.	M6, S&F5, S&F8	P7
M8: The decision maker retains the last say over any important decision in the design process.	Despite having invited the participants to express their opinions about the finished participation plan, and despite attempting to take into account these views in the final plan, the decision maker retains the final say over the plan to adopt especially where there are contradictory wishes of the participants (Mazri 2007:146).	C9	P5

Table A3-4. Principles overview table, Stern and Fineberg (1996).

Principle	Explanation	Similar principle(s)	Summarized principle
S&F1: Design participation should be too broad rather than too narrow.	"Particularly for government regulatory agencies that have limited public trust, it is usually wiser to err on the side of too broad rather than too narrow participation" (Stern and Fineberg 1996:87).	C3, C4, M5, S&F2	P3
S&F2: Do not consider *if* but *how* to involve stakeholders at every step of the process.	"Deliberation is necessary and appropriate at every step of the process. We do not advocate unlimited participation or full deliberation at every step. Rather we advocate that agencies (and other organisations) begin by asking *how* to involve the parties in the steps leading up to risk characterization and *what* to deliberate, rather than asking *whether* to involve them" (Stern and Fineberg 1996:87). Also, "...managers should consider the role of deliberation in each of the steps leading to a decision, from problem formulation through knowledge generation and summarization. They should consider how various values and interests might affect each task and how to use deliberation to	C3, C4, M5, S&F1	P3

	ensure that concerns are considered at each step in ways that are credible to the interested and affected parties" (Stern and Fineberg 1996:94).		
S&F3: From early on, inform participants about any constraints on the process as well as their influence as participants.	"Conveners of deliberative processes should clearly and explicitly inform participants at the outset about any constraints on the process and on how the agency can, or is likely to, use their input. Is it willing and able to commit necessary resources? Will it be represented in the deliberatory process by personnel with sufficient authority to make commitments? How much impact will the deliberatory process have on risk characterization? Are there aspects of the risk characterization in which the parties' influence will be restricted? Are there legal restrictions on what can be considered in making the decision? " (Stern and Fineberg 1996:92).	S&F7	P4
S&F4: Strive for fairness in the process.	Even though the notion of fairness is subject to change over time and arguably also dependent on a given culture, perceptions of an unfair process may severely compromise the participation process. The organizing agency should therefore consider how to equalize the power of the participants with regard to their access to knowledge and other resources required to effectively participate.	B&C1, C5, C6, C8, C10, M2, M3, M4, S&F6	P6
S&F5: Plan for flexibility and iteration.	"Managers should take into account that deliberations sometimes result in a call to revisit past decisions—for example to gather new data in order to summarize knowledge better. They should expect such requests to arise and consider procedures for responding to them" (Stern and Fineberg 1996:94).	M6, M7, S&F8	P7
S&F6: Remain open to using novel and appropriate participation mechanisms.	"... [A]gency planners should address and, when appropriate, resist the temptation to standardize procedures.... [because] different situations may call for different processes... " If there is uncertainty about the appropriate method, do not hesitate to discuss this with stakeholders: "A prudent strategy for agencies is to adopt a willingness to cooperate with interested and affected parties in reaching agreements on the deliberative methods for specific cases" (Stern and Fineberg 1996:95). "... [I]t is not possible to predict which deliberative method will work most effectively in any given situation. ... Results will depend less on the ... [method] and more on its users and the setting in which it is used. ... The history of an issue, level of conflict, scientific data, and existing power dynamics may also influence outcome as much as the method" (Stern and Fineberg 1996:96).	B&C1, C5, C6, C8, C10, M2, M3, M4, S&F4	P6

S&F7: As the responsible agency, be clear about your potentially multiple roles of convener, party, process supervisor, etc. and distinguish them as necessary.	"As the *convener,* [the responsible agency] has an initial responsibility for diagnosing the situation and making initial estimates of time and resources needs, of who should be involved both within and outside the organization, and of the tasks that need to be accomplished. ... Staff also need to seek support of key decision makers for the deliberative process. The organization is also responsible for discussing the initial plans for the activity with the initial participants ... The responsible ... agency ... is also a *coparticipant,* with a legitimate interest and , perhaps a legal mandate to be involved in the risk characterization and the goal of reaching a fair and wise policy decision... An agency's expertise and its power over the decision need to be clearly stated and acknowledged by all participants. But it is the agency's responsibility to offer sound reasons if it chooses to ignore the results of a deliberative process ... The agency usually acts as an *overseer* of the deliberation, the party that usually works to break deadlocks and to reach closure. ... The agency should ... make serious efforts to distinguish its role as a party to the deliberation from its role as an overseer of the process" (Stern and Fineberg 1996:95).	S&F3	P4
S&F8: Combine analysis of the situation with deliberation.	Both, the analysis of a given environmental problem (for Stern and Fineberg it is risk characterization) and deliberation should occur at the same time and enrich each other. This will contribute to "increasing understanding about existing phenomena and estimating future conditions." Intertwining analysis with deliberation is also a way of "informing, constructing, and testing judgments about the validity of evidence and the appropriateness of decisions—not only substantive ones, but also the many procedural and methodological ones..." (Stern and Fineberg 1996:118).	M6, M7, S&F8	P7

APPENDIX 4. SUMMARY OF PRINCIPLES

Table A-4. Summary of general and author principles. When used below in connection with a number, the letter "P" refers to general principles explained in the text. The following letters refer to a guidebook: A = d'Aquino (2008), B&C = Beierle and Cayford (2002), C = Creighton (2005), M = Mazri (2007), and S&F = Stern and Fineberg (1996). The numbers used with them refer to a principle in that guidebook.

General principle	Author principles	Explanation and discussion of possible agreements and contradictions
P1: See the participation process as an opportunity for effective decision making, not as a constraining obligation.	C1: Public participation is viewed as the way decisions makers get the mandate they need to act. C2: The public participation process is well integrated into the decision-making process.	Decision makers should welcome the idea of participation when appropriate because a successful process will enable them to implement a decision. The principle also implies that any interaction with stakeholders during design or later during implementation should be clearly and transparently linked to specific decisions to be made. The other authors do not formulate anything that would contradict this principle. The principles B&C2, M7, and S&F5 develop this idea of effective decision making by urging the lead agency to learn from the stakeholders. To avoid a possible misunderstanding, this principle does not mean that participation should be used in all cases of decision making but only when the situation requires it. In this case, participation should be seen as an opportunity.
P2: Consider the input of the stakeholders during design and implementation.	B&C2: Recognize the legitimacy of public values. C7: Only undertake participation when the lead agency is committed to seriously considering the contribution of stakeholders.	This principle follows from P1. It means that the lead agency must commit to taking the contribution of stakeholders into account. It does not mean doing exactly what the stakeholders want but considering their input for any decisions to be made. From this, it follows that the lead agency should transparently explain on what grounds it decided to take into account specific stakeholder inputs. The other authors formulate compatible principles such as M2 and S&F5.
P3: Encourage inclusive and appropriate stakeholder involvement.	C3: The interested public is involved in every step of decision making. C4: Programs are targeted to ensure the involvement of all the stakeholders who perceive themselves to be affected. M5: The participation of the various actors in one participation process can take different forms. S&F1: Design participation too broad rather than too narrow. S&F2: Do not consider if but how to involve stakeholders at every step of the process.	This principle means that a balance needs to be found between involving all affected and interested parties early on, i.e., erring on the side of too much participation, and remaining efficient in the use of resources used for participation, i.e., refraining from involving everybody into everything. Beierle and Cayford also discuss this challenge even if they do not formulate it in their principles (see, for example, Beierle and Cayford's steps in stakeholder analysis).
P4: Clearly define the	S&F3: From early on, inform	From the beginning, the lead agency should be

roles and responsibilities of the lead agency and those of the participants.	participants about any constraints on the process as well as their influence as participants. S&F7: As the responsible agency, be clear about your potentially multiple roles of convener, party, process supervisor, etc., and distinguish between them as necessary.	transparent about the influence participants may have on the decision as well as about the roles it is itself to play in the design and implementation processes, e.g., neutral or partisan. Even though this principle should arguably be applied at the beginning of process implementation rather than during the design process, a corresponding attitude of the lead agency may already be required during design, e.g., when stakeholders are first encountered. Beierle and Cayford have integrated these principles in their steps (see SA 9). Without explicitly formulating this principle, Creighton and Mazri nevertheless enable stakeholders to inform themselves about constraints, roles, and responsibilities (C3, C4, M6, and M7).
P5: Respect political realities.	C9: Agencies retain decision-making authority throughout the participation process. M8: The decision maker retains the last say over any important decision in the design process.	This principle establishes that the main decision makers, not necessarily the lead agency, need to be identified and that they remain responsible for the final decision even if they choose to delegate this responsibility. Decision makers may also be responsible for many decisions during the design process, such as deciding who will be involved in the participation process and on what issues. This principle has to be balanced with P 2. Like Creighton, who puts forward both principles, we do not see this as a contradiction but as the reality in which the design and implementation of participation take place.
P6: Participation processes are to meet the needs of the stakeholders and context.	B&C1: Be open to potentially altering the framing of the problem according to the needs of the stakeholders. C5: Multiple techniques are used, aimed at different audiences. C6: Only undertake participation when there is enough interest on the part of the public/stakeholders in the policy decision to be made. C8: Only undertake participation when there are enough resources to finance a participation process. C10: The participation process should never be designed more ambitiously, in terms of the numbers of stakeholders invited and their influence on policy making, than the context, i.e., not only the decision makers but also other constraints such as schedule and budget, allows. M2: The design approach itself should be participatory. M3: The main problem to be addressed should be formulated by	This principle integrates a number of ideas, including that: stakeholders should be involved in framing or formulating the problem to be addressed in the participation process (B&C1, M2, M3); participation mechanisms are chosen according to the needs of the public, e.g., interest, knowledge (C5, S&F6), and the realities of the context, e.g., resources, environment, political situation, and objectives (C10); and participants are provided with the means, e.g., knowledge, opportunities, to participate in a meaningful way (M4, S&F4). There appears to be no contradiction among the authors here because they all specify steps that correspond to these principles (see, for example, DA4 and DA5).

	relying on the input of the concerned parties.	
	M4: The approach should consider the requirements of fairness, competence, and efficiency.	
	S&F4 Strive for fairness in the process	
	S&F6: Remain open to using novel and appropriate participation mechanisms.	
P7: Always remain open to adjusting the process design.	M6: The design of the participation process is subject to collective learning.	This principle highlights the fact that designers should be prepared to adjust the planned participation process and the subject matter to be treated in the process as information or additional constraints arise through the design and implementation of the participation process. It considers that critical or positive stakeholder feedback can incite adjustment of the process in areas such as the topic chosen as already pointed out by P6, the focus of the problem analysis, the experts selected to address a specific question, the stakeholders to be involved, and the participation mechanisms foreseen. However, care must be taken to also avoid stakeholder disappointment if original design plans are preferred by some stakeholders (see Barreteau et al. 2010).
	M7: Process design is iterative, i.e., it evolves as the result of a dialogue with the stakeholders.	
	S&F5: Plan for flexibility and iteration.	
	S&F8: Combine analysis of the situation with deliberation.	

APPENDIX 5. EXAMPLES OF TOOLS

Creighton (2005:49) provides a question-based checklist that can be used to determine stakeholder involvement (reprinted with permission of John Wiley & Sons, Inc.):

- *Who might be affected?*
- *Who are the representatives of those likely affected?*
- *Who are the voiceless?*
- *Who is responsible for what is intended?*
- *Who will be actively opposed?*
- *Who can contribute resources?*
- *Whose behavior would have to change if this decision were made?*

Creighton (2005:50) also pinpoints some information sources that can be used to identify stakeholders (reprinted with permission of John Wiley & Sons, Inc.):

- *Get people to self-identify [as stakeholders]…*
- *Analyze prior decision-making documents…*
- *Ask other people and seek local help…*
- *Identify based on staff knowledge…*
- *Identify based on past participation on similar issues…*

Table A5-1. Matching participation mechanisms to design questions (adapted from Beierle and Cayford 2002, reproduced with permission of Earthscan Ltd., www.earthscan.co.uk).

	Scope of inclusion		Representation		Kind of engagement		Level of public influence		Role of government	
Type of mechanism	Narrow	Broad	Socio-economic	Interest group	Information sharing	Deliberative	Low	Moderate or high	Passive	Active
Public comments	No	Yes	Yes	No	Yes	No	Yes	No	No	Yes
Surveys	No	Yes	Yes	No	Yes	No	Yes	No	No	Yes
Public meetings and hearings	No	Yes	Varies	Varies	Yes	No	Yes	No	No	Yes
Advisory committees not seeking consensus	Yes	No	Varies	Varies	Varies	Varies	Varies	Varies	Varies	Varies
Advisory committees seeking consensus	Yes	No	No	Yes	No	Yes	No	Yes	Varies	Varies
Citizen juries	Yes	No	Yes	No	No	Yes	Yes	No	Yes	No
Negotiations and mediations	Yes	No	No	Yes	No	Yes	No	Yes	Yes	No